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CCD PHOTOMETRY OF THE OPEN CLUSTER TOMBAUGH 5 IN THE VILNIUS SYSTEM

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Abstract. We present the results of eight-color CCD photometry of 674 stars in the direction of the open cluster Tombaugh 5 in Camelopardalis. The stars are observed in the Vilnius system supplemented by the broad-band I filter; the field is of 22′ diameter, the limiting magnitude is $V = 17.7$ mag. The catalog contains the coordinates, V magnitudes, seven color indices, two-dimensional spectral types determined from photometric parameters, interstellar extinctions and distances. The color-magnitude diagram plotted for 480 individually dereddened stars is used to identify cluster members and to determine the distance (1.74 kpc) and age (200–250 Myr) of the cluster. The faintest cluster stars classified are of spectral class G0. The cluster contains two blue stragglers of spectral classes B2–B4, both of them seem to be visual binaries. The extinction A_V for the cluster stars is non-uniform, being spread between 2 and 3 mag, with a mean value of 2.42 mag. The extinction vs. distance dependence can be modeled by the Parenago exponential curve with two dust concentrations in the Camelopardalis dark clouds at about 150 pc and the Cam OB1 association clouds at 0.9–1.0 kpc.

Key words: stars: fundamental parameters – Galaxy: open clusters: individual (Tombaugh 5)

1. INTRODUCTION

Several years ago we started a program of multicolor photometry of open clusters and star-forming regions applying a CCD version of the *Vilnius* seven-color system, supplemented with the broad I passband. Observational data were obtained with the Ritchey telescope of the U.S. Naval Observatory at Flagstaff. The following objects were investigated: open clusters M 67 (Laugalys et al. 2004), NGC 6997 (Laugalys et al. 2006a), Collinder 428 (Laugalys et al. 2007) and IC 361 (Zdanavičius et al. 2010), and four areas in the dark cloud LDN 935 at the North America and Pelican nebulae (Laugalys et al. 2006b). The present paper gives the results of photometry and classification of stars in the direction of a little investigated open cluster Tombaugh 5 in Camelopardalis (RA = $3^h\,47.8^m$, DEC = $+59°03.22'$, $\ell = 143.94°$, $b = 3.58°$; the coordinates are from Lata et al. 2004).

The cluster was discovered by Tombaugh (1941) who described it as a large

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and easily seen. Tombaugh counted in the cluster about 80 stars between magnitudes 14 and 16. The color-magnitude diagram of the cluster was first plotted by Reddish (1954) in a photographic version of the B, V system, down to a limiting V magnitude of about 15. The diagram was found to be similar to that of the Praesepe cluster, with a few yellow giants. The estimates of the extinction and distance, $A_V = 1.05$ mag and $d = 1.8$ kpc, were based on magnitudes and colors of the yellow giants.

Lata et al. (2004) obtained much deeper CCD photometry of the cluster in the *UBVRI* system and plotted its color-magnitude diagram down to $V \approx 21$ mag. Since there was no possibility to identify cluster members, the diagram is contaminated by field stars. For the identification of cluster members, only the radial distance from the center was used. By comparing with the isochrones from Girardi et al. (2002), the following parameters of the cluster were obtained: $E_{B-V} = 0.80$ mag, $d = 1.75$ kpc and the age 200 Myr.

Another deep (down to $V = 19$ mag) photometric investigation of Tombaugh 5 was done by Maciejewski & Niedzielski (2007) in the *BV* system. They redetermined the coordinates of the cluster center and, from the radial density profile, estimated the limiting radius (11.8′). The color-magnitude diagram of the cluster was decontaminated from field stars statistically by comparing with an area outside the cluster. By comparison with the isochrones from Bertelli et al. (1994), the following parameters of the cluster were obtained: $E_{B-V} = 0.80$ mag, $d = 1.33$ kpc and the age 251 Myr.

Majaess et al. (2008) investigated the cluster using the J,H,K_s data from the 2MASS survey. By fitting the isochrones from Bonatto et al. (2004) they obtained $E_{J-H} = 0.22$ mag (or $E_{B-V} = 0.81$), $d = 1.66$ kpc and the age 224×10^6 yr. The cepheid GSC 03729-01127 was found to be a probable member of Tombaugh 5. However, it is located at 21.9′ from the center, i.e., in the corona of the cluster. The paper also provides a table of six likely evolved B-type members of the cluster.[1]

However, all the quoted investigations of the cluster suffer from contamination by field stars. In the present paper, we investigate the cluster in the seven-color *Vilnius* photometric system supplemented by the broad-band I magnitude. This system allows us to determine spectral and luminosity classes and interstellar reddening for all stars down to $V = 17.2$ mag. This makes it possible to plot the intrinsic color-magnitude diagram and to estimate membership of stars in the cluster individually. In this way, we can obtain more confident estimates of the distance and age.

Figure 1 gives the location of Tombaugh 5 in the Galactic coordinates with respect to the dust clouds from the Dobashi et al. (2005) atlas and other surrounding objects. In Figure 2 we present a map of the investigated area, based on a copy from the DSS2 Red survey.

In Section 2 we describe observations in the field of Tombaugh 5 and data reductions. The results of photometry and classification of stars are provided in Section 3. In Section 4 we investigate the interstellar extinction in the area. In Section 5 we identify cluster members and determine the cluster parameters. Section 6 gives a summary of the results.

[1] According to our classification (see Table 3), all these stars are cluster members of spectral types B9.5 V – A0 V.

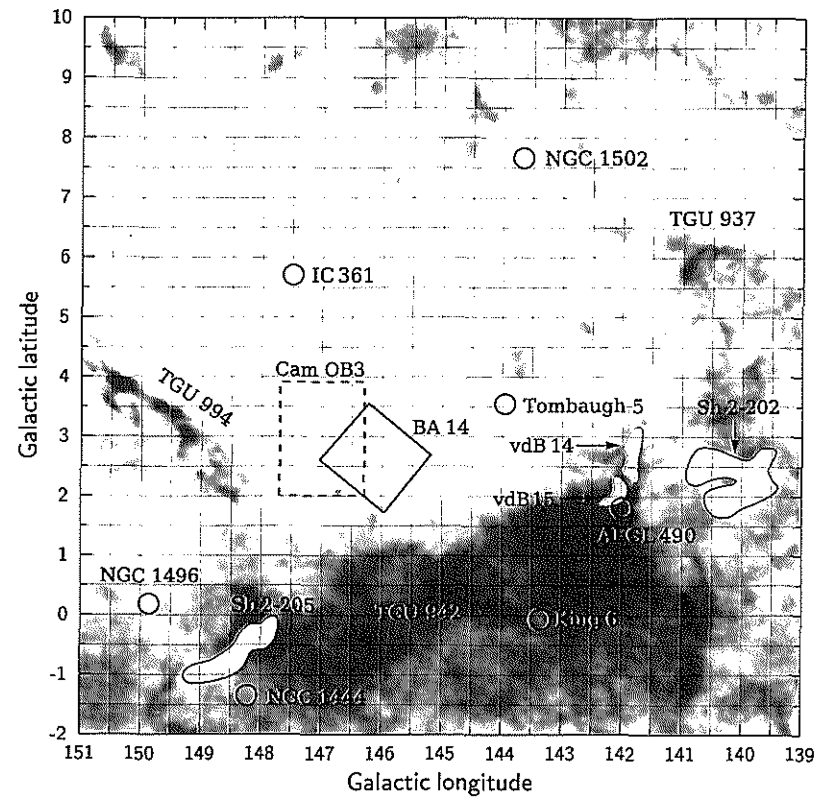

Fig. 1. The position of the Tombaugh 5 cluster with respect to the surrounding objects in the 12° × 12° area. The chart is based on the Dobashi et al. (2005) atlas of dark clouds (TGU numbers) and shows the positions of the nebulae Sh2-202, Sh2-205, vdB 14 and vdB 15, the open clusters King 6, NGC 1502, IC 361, NGC 1444 and NGC 1496, the association Cam OB3, the dark clouds TGU 937, TGU 942 and TGU 994, and the high-mass YSO AFGL 490. BA 14 is the area investigated by Zdanavičius et al. (2005a,b).

2. OBSERVATIONS AND REDUCTIONS

The cluster area was observed in seven filters of the *Vilnius* photometric system U,P,X,Y,Z, V and S, supplemented by the broad-band I filter, in December of 1999 with a 2K×2K CCD camera on the 1 m Ritchey telescope at the USNO Flagstaff Station (Arizona), which gives the 22′ diameter field (Figure 2). The list of exposures is given in Table 1. The mean wavelengths of the response functions are listed in Column 2.

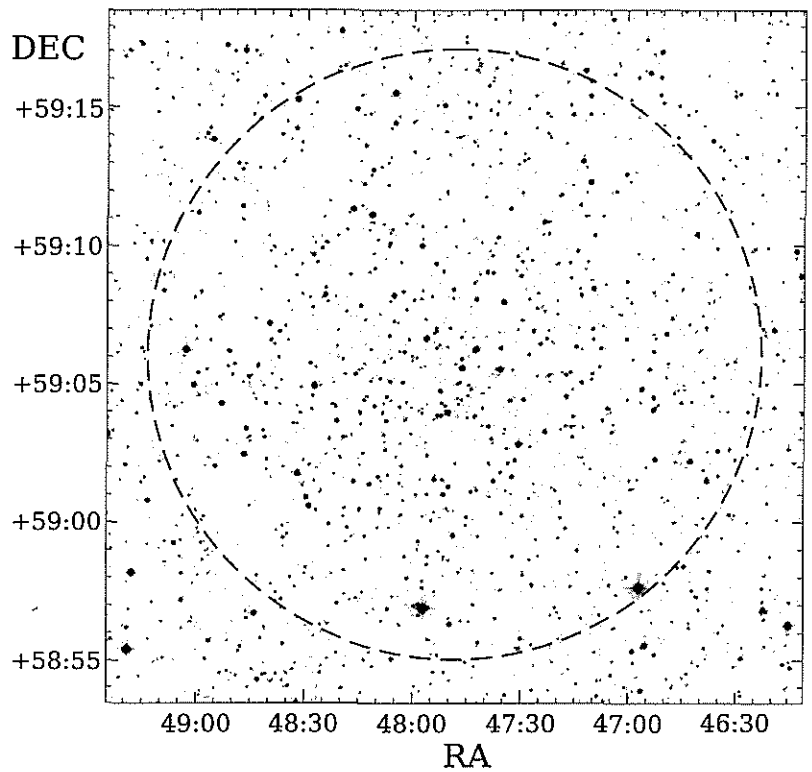

Fig. 2. Field of Tombaugh 5 (25′ × 25′) with the center at RA = 03:47:48, DEC = +59:06 (J2000) shown on the DSS2 Red map from SkyView. The circle with the 22′ diameter delineates the area investigated in the present paper.

Processing of the CCD frames was done with the IRAF[2] data reduction software using the point spread function (PSF) method. Flat-field corrections were obtained from the twilight and dome exposures. On each frame, up to 100 uncrowded stars were selected by multi-aperture photometry to obtain the best fit parameters of the PSF profile. Then this PSF was fitted to all stars in the corresponding frames.

[2] IRAF package (http://iraf.noao.edu) is distributed by the National Optical Astronomy Observatory, USA.

Table 1. Exposures of the cluster Tombaugh 5 taken with the 1 m telescope at the USNO Flagstaff Station.

Filter	λ_0 (nm)	Exposures (s)
U	345	1800, 300
P	374	1800, 300
X	405	1800, 300
Y	466	360, 60
Z	516	360, 60
V	544	360, 60
S	656	360, 60
I	700	180, 30

Table 2. Internal accuracy of the photometric catalog.

V interval	N_V	σ_V	σ_{U-V}	σ_{P-V}	σ_{X-V}	σ_{Y-V}	σ_{Z-V}	σ_{V-S}	σ_{V-I}
8.00 – 14.00	77	0.010	0.015	0.016	0.013	0.013	0.014	0.016	0.023
14.00 – 16.00	210	0.012	0.030	0.024	0.016	0.018	0.015	0.016	0.015
16.00 – 17.00	190	0.022	0.059	0.045	0.030	0.037	0.027	0.028	0.024
17.00 – 18.00	197	0.036	0.090	0.069	0.047	0.066	0.043	0.044	0.037

The equations for the transformation of instrumental magnitudes and color indices to the standard *Vilnius* system were taken from Zdanavičius et al. (2010). For fixing zero-points of magnitudes and color indices, photoelectric data of nine stars from Zdanavičius & Zdanavičius (2002a) were used. By definition, all color indices of the *Vilnius* system are normalized to zero for unreddened O-type stars. The transformation equation from the instrumental to the standard I magnitude was determined using 557 stars common to our catalog and the IPHAS survey (Drew et al. 2005). The normalization of $V-I$ is the same as of the *Vilnius* color indices.

Figure 3 shows the distribution of the measured stars in V magnitude. Table 2 gives the magnitude-dependence of the mean rms errors in the V magnitude and color indices. The single-measurement errors of V magnitudes for individual stars are shown in Figure 4.

3. THE CATALOG OF PHOTOMETRIC DATA AND SPECTRAL TYPES

In Table 3 we give the catalog of V magnitudes and color indices in the *Vilnius* system, and $V-I$ color indices, for 674 stars down to $V \sim 17.7$ mag. Only the stars having X, Y, Z and V magnitudes measured are included. A colon following the magnitude or color index indicates that its rms error is larger than 0.05 mag.

The catalog also contains two-dimensional spectral types (spectral and luminosity classes) for about 480 stars down to $V = 17.2$ mag, determined by photometric methods. For the photometric classification, a few different codes described by Zdanavičius et al. (2010) were used. For the calculation of reddening-free Q-parameters, the normal interstellar reddening law was used. In the absence of color indices containing the ultraviolet U and P magnitudes, the accuracy of luminosity class determination for B to early G subclasses is too low, therefore for such stars only one-dimensional spectral classes are given. A few tens of stars were suspected

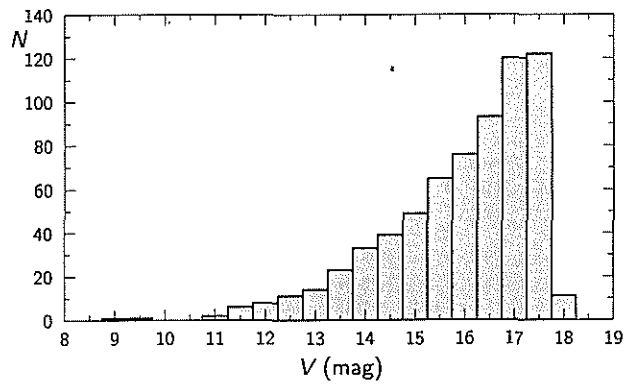

Fig. 3. Star counts in the magnitude V bins.

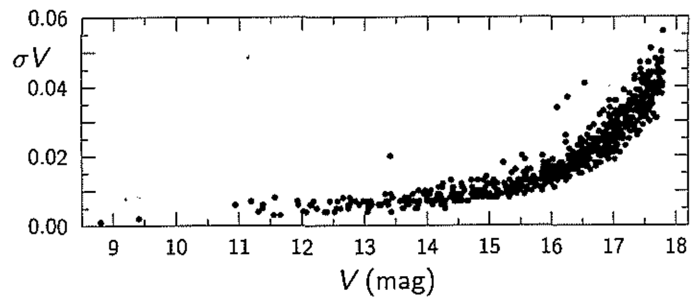

Fig. 4. Single-measurement errors of the magnitude V.

to be Am or Ap stars, subdwarfs (sd) or metal-deficient giants (mdg). Some stars can belong to unrecognized types or unresolved binaries, since for them we could not find close photometric analogues among about 13 000 stars in the comparison catalog. For the classification of some stars, additional information from the J–H vs. H–K_s diagram of 2MASS (Skrutskie et al. 2006) was important. In Table 3, spectral classes are given in the lower-case letters to indicate that they are determined from multicolor photometric data.

For the bright stars of the area ($V \sim$ 9–12, measured by Zdanavičius & Zdanavičius (2002a, [ZZ2002] in Simbad) photoelectrically, Table 3 lists their magnitudes and colors from CCD measurements. The star [ZZ2002] 205 (B8.5 V:) with asymmetric image (possible VB) was not included. The star [ZZ2002] 200 = HDE 237180 = WDS 03480+5857 (K giant) in the catalog [ZZ2002] has correct photometry but wrong coordinates; it is also absent in Table 3.

4. INTERSTELLAR EXTINCTION

The derived spectral and luminosity classes for the stars were used to determine their intrinsic color indices; the calibrations were taken from Straižys (1992). Then, interstellar reddenings (color excesses), interstellar extinctions A_V and distances

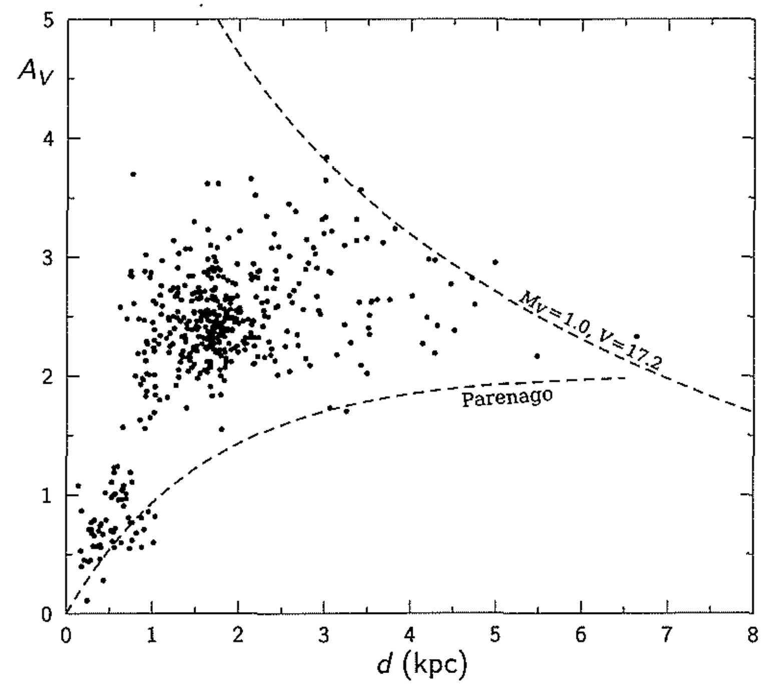

Fig. 5. Distribution of the extinction A_V with distance for 510 stars down to V = 17.2.

d to the stars were calculated (for more details see Zdanavičius et al. 2009). The values of A_V and d are given in Table 3. Typical errors of A_V, arising from the observational errors of color indices, are $\pm$0.1 mag. Typical errors of distances d are between $0.8\,d$ and $1.26\,d$, corresponding to the error in absolute magnitude $\Delta M_V = \pm 0.5$ mag. The unresolved and unrecognized in the classification process main-sequence binaries have negative distance errors from zero (if the secondary is much fainter) up to $0.71\,d$ (if both components are identical).

The plot of the extinction vs. distance for the whole field is shown in Figure 5. The lower broken curve shows the run of extinction according to the exponential Parenago (1945) law, accepting the extinction in the Galactic plane a_0 = 1.25 mag/kpc. The Parenago curve corresponds to the diffuse component of interstellar dust, and we expect it should coincide with the lower envelope of the distribution of reddened stars. However, most of the stars between 200–700 pc lie above the curve; this can be explained by a sudden rise in extinction up to A_V = 0.7 mag in the Gould Belt Camelopardalis clouds, discovered and investigated in our earlier papers (Zdanavičius et al. 1996, 2001, 2002a,b, 2005a,b) and located at about 140 pc from the Sun. Probably, these clouds are the extension of the Taurus clouds to the opposite side of the Galactic equator. The second jump in extinction, of about 2 mag, is seen at 900 pc, and it can be related to the dust layer, which includes

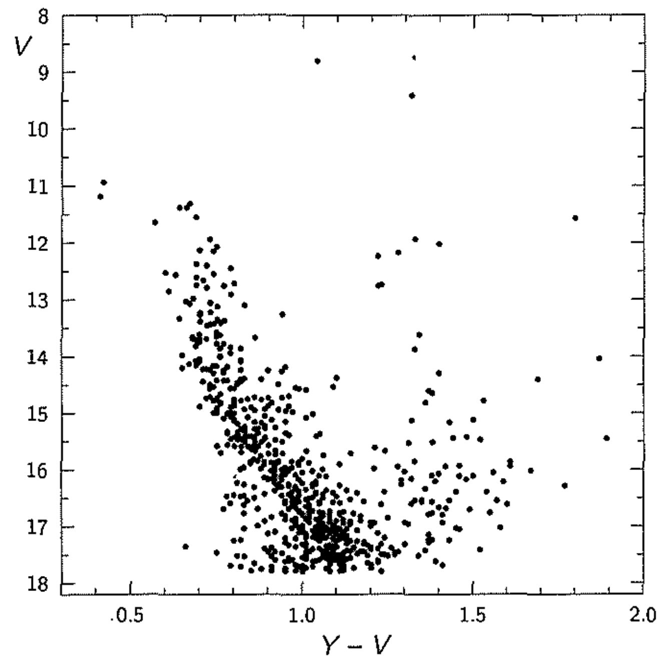

Fig. 6. The observed color-magnitude diagram for all stars of Table 3.

the Cam OB1 association (Straižys & Laugalys 2007a,b, 2008). At distances $d > 1$ kpc, the extinction does not increase but remains uneven, with the scatter in A_V between 2 and 4 mag.

The broken curve in the upper right part of Figure 5 corresponds to the limiting magnitude V = 17.2 and the absolute magnitude of A0 V stars, M_V = 1.0. Above this curve, stars with large extinctions are not present due to the limiting magnitude of our catalog.

The Tombaugh 5 area is at an angular distance of only $\sim 2°$ from the Cam OB3 area investigated by Zdanavičius et al. (2005b) and of $\sim 4°$ from the cluster IC 361 area investigated by Zdanavičius et al. (2010). The extinction vs. distance plots in the Cam OB3 and Tombaugh 5 directions show an evident similarity. However, the extinction in the Tombaugh 5 area reaches larger values, what can be related to a fainter limiting magnitude. The Tombaugh 5 area exhibits also a higher density of 100 μm dust emission (Schlegel et al. 1998) and CO molecules (Dame et al. 2001). The atlas of dark clouds by Dobashi et al. (2005) also shows a larger extinction in the vicinity of Tombaugh 5 (see Figure 1). The cluster IC 361 is at higher Galactic latitude (b = +5.7), and the extinction in this direction is lower – at $d > 2$ kpc it reaches 2–2.5 mag. However, even in the IC 361 area, a jump of the extinction of about 1 mag at $d < 200$ pc seems to be present.

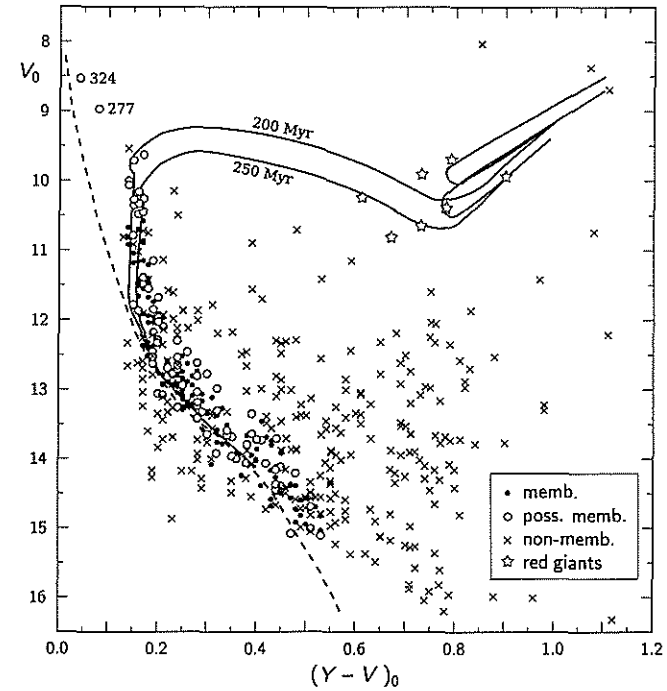

Fig. 7. Intrinsic color-magnitude diagram with the cluster members, possible members and non-members indicated by different symbols. The star-like symbols denote seven red giants, possible cluster members. The ZAMS line and two isochrones fitted to the distance modulus $V{-}M_V$ = 11.2 are also plotted.

5. PARAMETERS OF TOMBAUGH 5

In Figure 6 we present the plot V vs. $Y{-}V$ for all 674 stars in the area taking the magnitudes V and color indices $Y{-}V$ from Table 3. These stars are affected by different amounts of extinction and reddening. In Figure 7 we plot the intrinsic diagram V_0 vs. $(Y{-}V)_0$ for the 480 stars for which spectral and luminosity classes have been determined. Magnitudes and color indices for each of these stars are corrected subtracting their individual extinctions and reddenings: $V_0 = V - A_V$ and $(Y{-}V)_0 = Y{-}V - E_{Y-V}$. It is obvious that the intrinsic color-magnitude diagram is much more relevant for determining the distance and age of the cluster since it is free of the effect of differential extinction and reddening among the cluster members. In Figure 7, stars are plotted by four different symbols: dots designate the selected cluster members, open circles designate possible members, crosses designate non-members and star-like symbols denote seven red giants, possible cluster members. The cluster membership was determined in the following way.

1. In the V_0 vs. $(Y{-}V)_0$ diagram, the isochrones of solar metallicity and different ages, calculated by Bressan & Tautvaišienė (1996), were fitted to the lower envelope of the main sequence in the color range $(Y{-}V)_0$ = 0.2–0.4, where

the main sequence of the cluster is most distinct. We accepted for the cluster a solar metallicity, since analogues of the potential cluster members in the F–G spectral range, found from photometric classification, all were of solar composition. The isochrones for 200 and 250 Myr, shown in Figure 7, fit the observed cluster sequence best. Well matched are not only B-type stars on the deviating main sequence but also the positions of seven G–K giants.

2. The next step consisted in selecting stars which lie within a typical width of the main sequence up to 1 mag above ZAMS (see Meynet et al. 1993). Among stars with upward deviations from the ZAMS, unresolved binaries composed from main-sequence stars should constitute a significant fraction. If both components are of the same spectral type, the binary system is brightened by 0.75 mag. Some stars, lying below the ZAMS, were also assumed to be the cluster members, taking into account their photometric errors and cosmic dispersion around the ZAMS. The location of the selected stars in the diagrams X_0 vs. $(X{-}S)_0$ and S_0 vs. $(V{-}S)_0$ was also checked. Some stars, deviating from the main-sequence belt too much, were attributed to possible members.

3. The selected stars were then examined to see if their positions in the A_V vs. d diagram do not deviate more than the distance error box (between $0.8d$ and $1.26d$; this corresponds to 1.39 kpc and 2.19 kpc). Since in the direction of the cluster the extinction is non-uniform, the expected A_V range for the cluster members is between 2.1 and 3.0 mag. The stars surrounding the clump of cluster members and spanning the distance range 1.2 to 2.7 kpc and the extinction range 2.0 to 3.2 mag were accepted as possible members.

Figure 8 shows the surface distribution of the selected 130 cluster members, 85 possible members and 290 non-members in the RA vs. DEC plane. The investigated area is outlined by a circle. As it was expected, the selected members exhibit a concentration toward the cluster center. The non-members in panel (c) also show the crowding in some directions, which can be due to the differences in extinction.

The ZAMS and the two isochrones fit to the lower envelope of the cluster members yields its distance modulus $V{-}M_V = 11.2$ mag, or $d = 1.74$ kpc. This distance is in agreement with the largest concentration of stars in the A_V vs. d plot (Figure 5). As pointed out above, the age of the cluster is between 200 and 250 Myr. It is difficult to assign a single value of the age since the observed sequence and the theoretical isochrones have a somewhat different form in the turn-off region.

Figure 7 shows that two B-type stars of early subclasses, Nos. 277 and 324 in Table 3, lie close to the ZAMS, but well above the turn-off point of the cluster stars. Both stars are located at the cluster center. The star No. 324 is known as an emission-line OB star (Stephenson & Sanduleak 1977; Coyne & MacConnell 1983; Kohoutek & Wehmeyer 1997). McCuskey (1956) gave its spectral class B3. Its images in DSS2 Red and IR are slightly asymmetric, i.e., the star can be a visual binary. The star No. 277 is located only at 2′ from No. 324 and is known as binary WDS 03477+5907, with a separation of about 4.5″and $\Delta m = 1.6$. According to McCuskey (1956), its spectral class is B3 (see also the note at the end of Table 3). In Table 3 both components are given separately (Nos. 277 and 281).

Our photometric classification gives B4 III-IV for the star No. 277 and B2 IV-V for the star No. 324. If both stars are at the distance of Tombaugh 5, they should be blue stragglers. Their evolutionary status could be explained by a

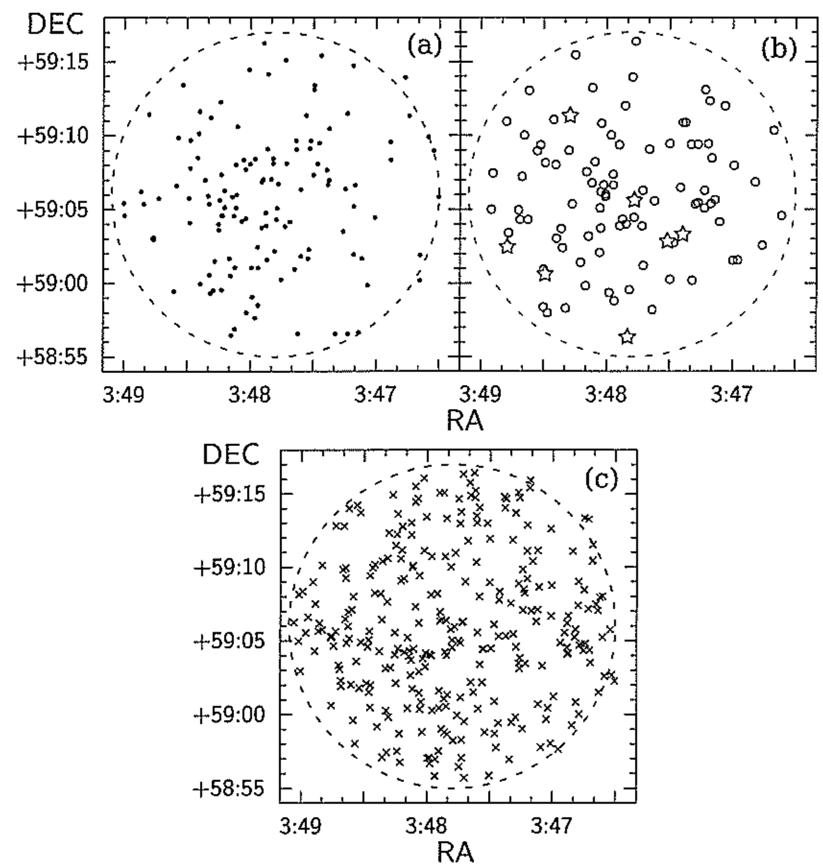

Fig. 8. Surface distribution of the cluster members (panel a), possible members (panel b) and non-members (panel c) in the investigated area (broken circle).

recently repeated cycle of massive star formation. However, the cluster does not exhibit remains of gas and dust which could be still present in the central region of the cluster. Thus, a possible scenario of interacting binaries with mass transfer between the components seems to be more appropriate.

The seven G–K giants, lying close to the two isochrones, also deserve a special discussion. Their numbers in Table 3 are 192, 221, 300, 318, 509, 571 and 643, in Figures 7 and 8 they are plotted by star-like symbols. These stars can be cluster members in the hydrogen- and helium-burning stages. The first three are located within 4′ from the cluster center. If these seven stars are cluster members, their M_V should be from −0.4 to −1.5 mag, i.e., they should be absolutely brighter than giants in the solar vicinity. This is partly confirmed by our photometric classification, but its accuracy is relatively low since G–K stars of luminosity classes II and

II-III are not sufficiently represented in our catalog of comparison stars. Due to this ambiguity in luminosity classes, in Table 3 we do not give for these stars their distances. However, their intrinsic color indices do not depend strongly on luminosity, hence their color excesses and extinctions A_V should be reliable. In any case, these G–K giants should be considered only as possible cluster members until their membership status is verified by other methods.

Table 3 also contains two stars of spectral classes K5 III and M0 III (Nos. 378 and 674), which in Figure 7 lie close to the isochrones representing the asymptotic giant branch. If these two stars are the cluster members, their M_V should be –2.7 and –2.9, or luminosity class II. However, our photometric classification gives luminosity classes III, and this can be an argument that these two stars are field giants.

6. CONCLUSIONS

Using eight-color CCD photometry in the direction of the open cluster Tombaugh 5, we derived photometric spectral and luminosity classes for about 480 stars down to $V = 17.2$ mag. In the color-magnitude diagram, plotted for the intrinsic colors and magnitudes, we identified 129 members and 85 possible members of the cluster. Among the classified stars, the faintest cluster members are of spectral class G0 V. The zero-age main sequence and isochrone fit to the lower envelope of the dereddened main sequence yields a distance to the cluster of 1.74 kpc, and an age of 200–250 Myr. Both the age and the distance are in good agreement with the Lata et al. (2004) and Majaess et al. (2008) results.

The cluster may contain two blue stragglers of early B subclasses and seven G–K giants. The membership of these stars seems to be confirmed by their proper motions. The location on the ZAMS of blue stragglers may indicate a repeated star-forming cycle in the cluster. However, this is hardly possible as the cluster does not contain any observable remains of interstellar matter and is located between the Local and Perseus arms, far from the regions of recent star formation. It is more reasonable that these stars once were interacting binaries with mass transfer between the components.

The interstellar extinction A_V vs. distance diagram plotted for all classified stars in the area has revealed jumps in extinction at distances of the Gould Belt dust clouds at 100–200 pc and the Cam OB1 association clouds at 0.9 kpc. The extinction in front of the cluster is likely to be non-uniform, showing the spread in A_V between 2.1 and 3.0 mag, with a mean value of 2.42 mag for the cluster members. Behind the cluster the extinction ranges from 1.8 to 3.6 mag.

ACKNOWLEDGMENTS. The use of the Simbad, IPHAS, SkyView and IRSA's Gator databases is acknowledged. The authors are thankful to Daniel Majaess for providing us the spectra of some stars, and to Edmundas Meištas and Stanislava Bartašiūtė for their help in preparing the paper.

Note at the proof. In April of 2011 Daniel Majaess provided us the low-resolution spectra (~ 1 Å/pixel) of four stars of the cluster, exposed with the 1.8 m telescope at DAO. Spectral classification of these stars confirms our photometric spectral types; the results are given in Notes to Table 3.

REFERENCES

Bertelli G., Bressan A., Chiosi C. et al. 1994, A&AS, 106, 275

Bonatto C., Bica E., Girardi L. 2004, A&A, 415, 571

Bressan A., Tautvaišienė G. 1996, Baltic Astronomy, 5, 239

Coyne G. V., MacConnell D. J. 1983, Publ. Vatican Obs., 2, 73

Dame T. M., Hartmann D., Thaddeus P. 2001, ApJ, 547, 792

Dobashi K., Uehara H., Kandori R., Sakurai T., Kaiden M., Umemoto T., Sato F. 2005, PASJ, 57, S1

Drew J. E., Greimel R., Irwin M. J. et al. 2005, MNRAS, 362, 753

Girardi L., Bertelli G., Bressan A. et al. 2002, A&A, 391, 195

Kohoutek L., Wehmeyer R. 1997, Astron. Abh. Hamburg Sternw., 11, 1 = CDS Catalog III/205

Lata S., Mohan V., Pandey A. K., Sagar R. 2004, BASI, 32, 59

Laugalys V., Kazlauskas A., Boyle R. P., Vrba F. J., Philip A. G. D., Straižys V. 2004, Baltic Astronomy, 13, 1

Laugalys V., Straižys V., Vrba F. J., Boyle R. P., Philip A. G. D., Kazlauskas A. 2006a, Baltic Astronomy, 15, 327

Laugalys V., Straižys V., Vrba F. J., Boyle R. P., Philip A. G. D., Kazlauskas A. 2006b, Baltic Astronomy, 15, 483

Laugalys V., Straižys V., Vrba F. J., Černis K., Kazlauskas A., Boyle R. P., Philip A. G. D. 2007, Baltic Astronomy, 16, 349

Maciejewski G., Niedzielski A. 2007, A&A, 467, 1065, 2007

Majaess D. J. 2011, personal communication

Majaess D. J., Turner D. G., Lane D. J. 2008, MNRAS, 390, 1539

McCuskey S. W. 1956, ApJS, 2, 298

Meynet G., Mermilliod J.-C., Maeder A. 1993, A&AS, 98, 477

Parenago P. P. 1945, AZh, 22, 129

Reddish V. C. 1954, MNRAS, 114, 583

Schlegel D. J., Finkbeiner D. P., Davis M. 1998, ApJ, 500, 525

Skrutskie M. F., Cutri R. M., Stiening R. et al. 2006, AJ, 131, 1163

Stephenson C. B., Sanduleak N. 1977, ApJS, 33, 459

Straižys V. 1992, *Multicolor Stellar Photometry*, Pachart Publishing House, Tucson, Arizona; available in pdf format from http://www.itpa.lt/MulticolorStellarPhotometry/

Straižys V., Laugalys V. 2007a, Baltic Astronomy, 16, 167

Straižys V., Laugalys V. 2007b, Baltic Astronomy, 16, 327

Straižys V., Laugalys V. 2008, *Young Stars and Clouds in Camelopardalis*, in *Handbook of Star Forming Regions, vol. 1. The Northern Sky*, ed. B. Reipurth, ASP, p. 294

Tombaugh C. W. 1941, PASP, 53, 219

Zdanavičius J. Bartašiūtė S., Boyle R. P., Vrba F. J., Zdanavičius K. 2010, Baltic Astronomy, 19, 63

Zdanavičius J., Černis K., Zdanavičius K., Straižys V. 2001, Baltic Astronomy, 10, 349
Zdanavičius J., Zdanavičius K. 2002a, Baltic Astronomy, 11, 75; [ZZ2002] in Simbad
Zdanavičius J., Zdanavičius K. 2002b, Baltic Astronomy, 11, 441
Zdanavičius J., Zdanavičius K. 2005a, Baltic Astronomy, 14, 1
Zdanavičius J., Zdanavičius K., Straižys V. 2005b, Baltic Astronomy, 14, 31
Zdanavičius K., Zdanavičius J., Kazlauskas A. 1996, Baltic Astronomy, 5, 563
Zdanavičius K., Zdanavičius J., Straižys V., Maskoliūnas M. 2009, Baltic Astronomy, 18, 33

Table 3. Photometry, spectral and luminosity classes, interstellar extinctions, distances and cluster membership for stars in the Tombough 5 area. The numbers of stars having notes at the end of the table are marked by asterisks.

No.	RA(2000) h m s	DEC(2000) ° ′ ″	V mag	$U-V$ mag	$P-V$ mag	$X-V$ mag	$Y-V$ mag	$Z-V$ mag	$V-S$ mag	$V-I$ mag	Photom. sp. type	A_V mag	d pc	Memb.
1	3 46 30.3	+59 05 50	15.07	3.58	2.74	1.70	0.84	0.31	0.64	1.03	a5 V	2.33	1540	m
2	3 46 30.5	+59 02 16	15.68	3.49	2.83	2.02	0.92	0.38	0.85	1.29	g1 IV	1.55	1800	
3	3 46 31.9	+59 02 41	16.69	3.67	2.79	1.85	0.87	0.34	0.80	1.24	a8 V	2.51	2300	
4	3 46 32.5	+59 05 45	16.48	4.28	3.75	2.58	1.03	0.56	0.95	1.34	k3.5 V	1.11	530	
5	3 46 32.7	+59 08 58	15.65	3.58	2.73	1.75	0.86	0.32	0.65	1.05	a6 V	2.33	1830	m
6	3 46 34.8	+59 04 00	17.30			2.32	1.13	0.51	0.94	1.48	g			
7	3 46 35.2	+59 09 54	15.66	3.77	2.92	1.88	0.92	0.33	0.74	1.16	a5 V	2.72	1690	m
8	3 46 35.3	+59 02 36	13.38	2.79	2.20	1.46	0.70	0.27	0.60	0.85	f3 V	1.08	670	
9	3 46 36.1	+59 03 15	17.35			2.03	0.98	0.38	0.88	1.43	f			
10	3 46 36.1	+59 07 23	17.78		2.85	2.20	1.11	0.43	0.92	1.41	f			
11	3 46 36.2	+59 08 01	16.59			2.93	1.32	0.51	1.15	1.79	g9.5 III	2.17	5480	
12	3 46 36.2	+59 05 14	15.99	3.66	2.68	1.56	0.82	0.31	0.64	1.00	a1.5 V	2.55	2930	
13	3 46 36.7	+59 04 34	15.47	3.51	2.68	1.63	0.82	0.29	0.66	1.03	a5 V	2.23	1940	m:
14	3 46 37.1	+59 08 25	16.10			2.95	1.38	0.48	1.22	1.86	g-k, mdg:			
15	3 46 37.5	+59 07 57	16.91	3.63	2.83	1.73	0.89	0.30	0.75	1.18	a5 IV	2.49	4190	
16	3 46 38.0	+59 02 34	17.57			2.64	1.01	0.46	1.11	1.63	k			
17*	3 46 38.1	+59 01 31	11.94	3.36	2.29	1.32	0.73	0.24	0.62	0.88	a0 III:	2.31		m:
18	3 46 38.4	+59 07 03	15.01	4.14	3.01	1.92	1.03	0.37	0.89	1.37	f0 III	2.84	1420	
19	3 46 39.0	+59 04 15	17.67			2.57	1.11	0.49	1.02	1.58	k			
20	3 46 39.1	+59 01 54	15.72	3.70	2.84	1.76	0.90	0.33	0.76	1.15	a5 V	2.63	1750	m
21	3 46 39.2	+59 00 11	16.98		2.84	2.05	1.09	0.36	0.92	1.43	f4 V	2.71	1540	m
22	3 46 39.3	+59 11 58	17.27			2.86	1.18	0.63	1.17	1.72	m			
23	3 46 39.4	+59 07 29	16.72	3.72	2.89	1.94	1.03	0.36	0.90	1.35	a2 V	3.39	2660	
24	3 46 39.6	+58 59 31	17.78:			1.61:	0.85:	0.31:	0.60:	1.03:	f			
25	3 46 40.1	+59 06 13	17.42			2.23	1.13	0.40	1.01	1.45	f			
26	3 46 40.3	+59 06 09	17.50			2.33	1.24	0.49	0.96	1.45	a			
27	3 46 40.4	+59 00 55	17.37			1.92	0.91	0.35	0.74	1.22	g			
28	3 46 40.5	+59 10 20	16.14	3.75	2.81	1.86	0.94	0.33	0.80	1.23	a8 V	2.46	2170	m:
29	3 46 40.8	+59 10 27	14.60	5.25	4.34	3.08	1.37	0.51	1.23	1.83	g9.5 III	2.56	1830	
30	3 46 40.9	+59 11 32	16.54		3.79	2.79	1.33	0.50	1.16	1.84	g3 IV	3.14	1240	
31	3 46 41.1	+58 59 58	17.34			2.16	1.07	0.39	0.96	1.47	f			
32	3 46 41.2	+59 10 24	15.90	4.03	3.13	2.28	1.11	0.40	1.01	1.51	f4 IV	2.91	1290	
33	3 46 42.1	+59 03 31	16.94		3.25	2.30	1.05	0.43	1.00	1.41	g5 V	2.02	930	
34	3 46 42.5	+59 04 22	15.74	3.71	2.90	2.08	1.06	0.40	0.89	1.30	f3 IV	2.37	1640	
35*	3 46 42.8	+59 02 14	12.72:	2.83:	2.25:	1.42:	0.80:	0.37:	0.54:	0.85:				
36	3 46 43.0	+59 07 10	15.98	3.51	2.68	1.82	0.88	0.31	0.76	1.11	f0 V	2.10	2170	
37	3 46 43.0	+59 13 16	16.54			3.19	1.43	0.60	1.25	2.08	k0.7 IV	2.76	1370	
38	3 46 44.4	+59 11 19	16.18	3.98	2.98	1.96	0.94	0.34	0.85	1.32	a7 V	2.89	1650	m
39	3 46 44.5	+59 04 48	17.16		3.18	2.35	1.05	0.42	0.97	1.41	g8 V	1.83	920	
40	3 46 44.7	+59 04 58	17.55			2.41	1.12	0.47	0.91	1.38	g			
41	3 46 44.8	+59 13 21	16.62		2.97	1.93	0.97	0.37	0.77	1.29	a5 V	2.89	2430	
42	3 46 44.9	+59 00 15	17.71			1.89	0.91	0.29	0.90	1.33	f			
43	3 46 45.0	+59 05 42	17.63			2.32	1.08	0.42	1.02	1.50	g			
44	3 46 45.0	+59 08 26	16.26	3.56	2.71	1.90	0.93	0.34	0.86	1.25	f7 III	1.70	3250	

Table 3. Continued

No.	RA(2000) h m s	DEC(2000) ° ′ ″	V mag	$U-V$ mag	$P-V$ mag	$X-V$ mag	$Y-V$ mag	$Z-V$ mag	$V-S$ mag	$V-I$ mag	Photom. sp. type	A_V mag	d pc	Memb.
45	3 46 45.3	+59 02 55	17.53			2.09	1.10	0.33	1.01	1.44	f			
46	3 46 45.4	+59 04 20	14.94	3.33	2.62	1.88	0.93	0.33	0.82	1.20	f4 V	1.93	860	
47	3 46 45.9	+59 02 34	16.58	3.55	2.80	2.01	0.95	0.37	0.92	1.34	f6 V	2.13	1430	m:
48	3 46 46.2	+59 04 47	17.25		2.70	1.65	0.80	0.29	0.66	1.03	a4 V	2.38	4510	
49	3 46 46.4	+59 13 54	15.57	3.70	2.82	1.76	0.90	0.41	0.60	1.08	a5 V	2.46	1830	m
50	3 46 46.5	+59 05 02	17.44		2.82	2.01	1.02	0.39	0.86	1.32	f			
51	3 46 47.3	+59 04 41	16.07			3.14	1.40	0.52	1.29	1.96	g8.5 III	2.87	3070	
52	3 46 47.4	+59 00 01	16.15		4.15	2.85	1.32	0.50	1.21	1.86	g6 III	2.62	3400	
53	3 46 47.7	+59 09 00	14.73	4.05	2.99	1.93	0.94	0.35	0.77	1.19	a6 III	2.87	1600	
54	3 46 47.9	+59 07 24	14.42	2.94	2.38	1.68	0.77	0.31	0.72	0.94	f9.5 V	0.97	700	
55	3 46 47.9	+59 13 38	17.73			2.26	1.15	0.49	0.98	1.54	f			
56	3 46 49.0	+59 00 50	16.78		3.10	2.27	1.08	0.41	1.03	1.54	g1.5 V	2.21	1020	
57	3 46 49.1	+59 05 46	15.70	3.54	2.60	1.55	0.76	0.29	0.62	0.92	a2 V	2.35	2680	
58	3 46 49.4	+59 06 51	12.98	3.13	2.20	1.27	0.68	0.24	0.57	0.78	a0 III	2.12	1630	m
59	3 46 49.5	+59 08 03	17.54		2.94	2.18	1.00	0.41	0.91	1.37	g			
60	3 46 49.6	+59 05 15	16.96	3.46	2.92	2.02	0.98	0.39	0.89	1.30	g0 IV	1.73	3060	
61	3 46 50.4	+59 11 04	17.05		2.95	2.24	1.04	0.43	0.87	1.41	g			
62	3 46 50.6	+59 00 56	17.55			2.14	1.14	0.41	1.00	1.49	f			
63	3 46 50.8	+58 59 16	16.53			2.93	1.35	0.51	1.19	1.84	g9.5 IV	2.63	1450	
64	3 46 52.0	+59 04 15	16.77:	3.71	2.90	2.00	1.15	0.40:	0.76:	1.33:	a			
65	3 46 52.5	+59 06 41	16.47	3.67	2.73	1.72	0.82	0.28	0.75	1.09	a8 III	2.19	4280	
66	3 46 52.5	+59 04 09	16.10	3.42	2.73	1.69	0.92	0.36	0.78	1.19	a9 V	2.54	1550	
67	3 46 53.1	+59 08 20	15.24	3.70	2.77	1.71	0.83	0.31	0.70	1.04	a4 V	2.52	1670	m
68	3 46 53.1	+59 06 11	14.20	3.14	2.34	1.30	0.65	0.25	0.50	0.70	a1.5 V	1.84	1790	
69	3 46 53.1	+59 04 06	12.56	2.72	2.10	1.34	0.63	0.25	0.57	0.75	f1 V	1.00	550	
70	3 46 53.2	+59 04 32	13.33	3.06	2.16	1.21	0.64	0.22	0.53	0.75	a0 V	1.91	1670	
71	3 46 53.3	+59 09 33	17.10		2.84	2.11	1.06	0.46	0.90	1.34	f			
72	3 46 54.3	+59 05 33	13.97	3.10	2.26	1.27	0.65	0.24	0.53	0.75	a1 V	1.83	1690	
73	3 46 56.4	+59 04 50	12.85	2.60	2.05	1.34	0.61	0.23	0.58	0.72	f6 IV	0.56	880	
74*	3 46 57.2	+58 57 39	8.80	4.47	3.80	2.58	1.04	0.45	0.78		k1.2 III	0.77	294	
75	3 46 57.3	+59 09 43	17.57			2.05	1.13	0.33	0.95	1.47	a			
76	3 46 57.5	+59 07 05	17.61:		2.87:	2.03:	1.03:	0.36:	0.96:	1.43:	f			
77	3 46 57.6	+59 14 39	17.59			2.32	1.10:	0.46:	0.97:	1.54	g			
78	3 46 57.7	+59 01 34	17.24			2.31	1.13	0.41	1.05	1.58	f9 V	2.54	1290	m
79	3 46 58.4	+59 12 39	17.45			2.20	1.01	0.38	0.91	1.42	g			
80	3 46 58.7	+58 59 58	17.75			1.98	1.12	0.46	0.81	1.26				
81	3 46 59.1	+59 05 55	16.79			2.89	1.41	0.53	1.24	1.94	f-g			
82	3 46 59.4	+59 07 58	16.37	3.63	2.76	1.99	0.99	0.37	0.88	1.30	f1 V	2.25	2180	m:
83	3 46 59.5	+59 11 00	17.77			2.29	1.08	0.40	0.93:	1.43	g			
84	3 46 59.6	+59 01 13	16.15	3.99	3.00	1.92	0.92	0.34	0.83	1.29	a6 V	2.88	3050	
85	3 46 59.9	+59 12 19	17.20		3.07	2.10	0.95	0.33	0.89	1.44	f-g			
86	3 46 59.9	+59 01 33	16.66	3.81	2.98	2.02	0.98	0.30	0.92	1.39	a9 V	2.74	2320	m:
87	3 47 00.0	+59 13 53	17.39			2.06	1.03	0.36	0.91	1.39	a-f			
88	3 47 00.5	+59 08 44	14.93	3.86	2.91	1.82	0.89	0.33	0.76	1.15	a5 V	2.72	1210	
89	3 47 00.6	+59 04 27	16.62	3.54	2.78	2.01	1.02	0.33	0.84	1.30	f4 V	2.23	1630	m
90	3 47 00.7	+59 06 40	14.07	3.32	2.39	1.37	0.69	0.26	0.58	0.81	a1 V	2.16	2300	
91	3 47 00.9	+58 58 02	16.68			3.29	1.42	0.55	1.31	2.09	k1 III	2.60	4750	
92	3 47 00.9	+59 12 36	14.09	3.64	3.20	2.20	0.82	0.44	0.85	1.09	k3 V	0.44	257	
93	3 47 02.0	+59 07 32	17.60			2.96	1.04	0.67	1.13	1.52	k5			
94	3 47 02.3	+59 00 25	16.39			3.34	1.54	0.58	1.40	2.20	g9.5 III	3.22	3080	
95	3 47 03.0	+58 59 10	17.59			2.28	1.11	0.36	1.10	1.68	a			
96	3 47 03.0	+58 59 41	16.34	4.08	3.07	1.99	1.01	0.35	0.87	1.36	a5 V	3.09	2460	
97	3 47 03.8	+59 11 59	14.78	3.43	2.58	1.52	0.74	0.27	0.57	0.85	a4 V	2.07	1670	m:
98	3 47 04.1	+58 59 52	16.64	3.86	3.02	2.03	1.01	0.34	0.91	1.40	a9 V	2.88	1710	m
99	3 47 04.9	+59 07 50	17.79			2.47	1.08	0.48	0.99:	1.57	k			
100	3 47 05.0	+59 03 17	15.45			4.56	1.89	0.78	1.76	2.89	m0 III	3.24	3820	
101	3 47 05.1	+59 11 56	17.48		3.01	2.17	1.08	0.35	1.01	1.47	f			
102	3 47 05.6	+58 57 46	15.43	3.92	2.80	1.69	0.89	0.31	0.71	1.12	a2 V	2.91	2910	
103	3 47 06.2	+59 04 09	14.17	3.46	2.50	1.46	0.75	0.26	0.64	0.94	a1 V	2.32	2130	m:
104	3 47 06.6	+59 08 38	17.01		3.43	2.42	1.00	0.50	0.92	1.26	k2 V	1.19	750	
105	3 47 06.8	+59 01 40	17.22		3.08	2.24	1.11	0.41	1.01	1.53	f6 V	2.65	1510	m
106	3 47 07.0	+59 00 41	16.52	4.01	3.48	2.38	1.01	0.47	0.92	1.24	k2 V	1.24	600	
107	3 47 07.2	+59 11 07	16.44	3.66	2.76	1.82	0.94	0.31	0.84	1.27	a-f			

Table 3. Continued

No.	RA(2000) h m s	DEC(2000) ° ′ ″	V mag	U–V mag	P–V mag	X–V mag	Y–V mag	Z–V mag	V–S mag	V–I mag	Photom. sp. type	A_V mag	d pc	Memb.
108	3 47 07.2	+59 07 06	16.87	3.54	2.79	1.98	1.01	0.34	0.87	1.28	f4 V	2.15	2780	
109	3 47 07.3	+58 57 57	17.59			1.85	0.92	0.31	0.72	1.15	a-f			
110	3 47 07.9	+59 06 18	14.73	3.96	3.49	2.40	0.90	0.50	0.97	1.27	k3.5 V	0.71	284	
111	3 47 08.1	+58 59 09	17.62			2.09	1.12	0.40	0.83	1.41	f			
112	3 47 08.3	+58 56 40	15.76	3.80	2.92	1.81	0.88	0.34	0.70	1.17	a5 V	2.64	1840	m
113	3 47 08.4	+59 05 39	14.73	3.38	2.52	1.47	0.72	0.26	0.58	0.85	a1.5 V	2.22	1910	m:
114	3 47 08.7	+59 01 18	17.54			2.22	1.07	0.40	0.98	1.49	f-g			
115	3 47 09.6	+59 10 23	14.19	3.26	2.76	1.87	0.78	0.32	0.77	0.97	g8.5 V	0.70	378	
116	3 47 09.9	+59 08 28	12.79	3.28	2.32	1.39	0.72	0.26	0.63	0.88	a0 III	2.29	1380	m:
117	3 47 10.0	+59 06 39	15.46	3.52	2.67	1.66	0.79	0.28	0.68	1.01	a6 V	2.22	1770	m
118	3 47 10.2	+59 07 01	14.24	3.55	2.62	1.56	0.77	0.25	0.67	0.98	a3 IV	2.31	1620	
119	3 47 10.3	+59 05 23	14.53	3.47	2.54	1.47	0.74	0.25	0.62	0.89	a1.5 V	2.25	1980	m:
120	3 47 10.7	+59 05 12	16.94	3.75	3.10	2.22	1.06	0.35	1.00	1.51	f9 IV-V	2.27	1885	m
121	3 47 10.7	+59 01 57	16.95	3.73	2.94	2.11	1.06	0.36	0.96	1.43	f4 V	2.55	1640	m
122	3 47 10.8	+59 15 56	13.86	3.64	3.27	2.20	0.82	0.54	0.77	1.09	k3.7 V	0.11	243	
123	3 47 11.0	+59 12 19	12.37	3.03	2.16	1.30	0.69	0.25	0.59	0.79	b9 III	2.21	1350	m:
124	3 47 11.0	+59 14 44	15.27	3.62	2.73	1.66	0.83	0.30	0.68	1.04	a4 V	2.41	1780	m
125	3 47 11.0	+59 15 24	13.45	2.82	2.31	1.58	0.72	0.29	0.64	0.86	g0 IV	0.60	1020	
126	3 47 11.2	+58 57 28	16.17			3.00	1.48	0.51	1.30	2.01	f-g, mdg:			
127	3 47 11.3	+59 11 05	17.79		2.88	2.01	1.00	0.37	0.91	1.38	f			
128	3 47 11.6	+59 09 26	16.88		3.08	2.25	1.12	0.41	1.01	1.53	f6 V	2.67	1280	m:
129	3 47 12.1	+59 12 51	17.02		3.82	2.49	0.97	0.56	0.98	1.29	k4 V	0.81	730	
130	3 47 12.1	+59 11 57	17.04		2.79	2.04	1.07	0.39	0.92	1.36	f-g			
131	3 47 12.2	+59 09 11	16.94		3.31	2.32	1.21	0.44	1.03	1.55	f0 IV	3.62	1750	
132	3 47 12.2	+59 11 05	16.31	3.72	2.86	1.76	0.86	0.31	0.69	1.11	a4 V	2.62	2620	
133	3 47 13.1	+59 03 27	17.24			3.17	1.43	0.55	1.26	1.97	g9 III	2.95	4990	
134*	3 47 13.1	+59 13 05	12.76	3.36	2.37	1.43	0.77	0.27	0.63	0.91	a0 III	2.50	1240	m:
135	3 47 13.3	+59 02 22	17.43		3.14	2.02	1.09	0.40	0.87	1.38	a			
136	3 47 13.4	+59 05 05	14.09	3.22	2.36	1.34	0.69	0.23	0.58	0.82	a1 V	2.22	2070	m:
137	3 47 13.4	+58 56 34	16.51	3.86	2.99	1.99	0.98	0.38	0.83	1.33	a8 V	2.83	1820	m
138	3 47 13.4	+59 06 17	17.05		2.84	2.06	1.00	0.36	0.91	1.36	f7 V	2.10	1670	m
139	3 47 13.5	+59 08 14	14.49	3.51	2.77	1.97	0.93	0.34	0.85	1.21	f6 IV	2.01	960	
140	3 47 13.8	+59 08 28	16.47	3.38	2.47	1.53	0.78	0.32	0.66	0.97	ap:			
141	3 47 13.9	+59 11 29	14.56	3.58	2.61	1.58	0.79	0.27	0.66	0.97	a3 IV	2.52	1850	m
142	3 47 14.2	+59 07 04	16.77	3.73	2.72	1.62	0.83	0.26	0.69	1.05	a2			
143	3 47 14.4	+59 09 50	14.44	3.59	2.70	1.66	0.82	0.29	0.71	1.06	a5 V	2.32	1160	
144	3 47 14.4	+58 59 01	14.76	4.06	3.62	2.48	0.88	0.55	0.97	1.30	k4.5 V	0.45	282	
145	3 47 14.6	+58 58 13	17.36			2.23	1.10	0.46	0.91	1.44	f			
146	3 47 14.9	+59 06 23	13.68	3.07	2.24	1.31	0.68	0.23	0.56	0.78	b9.5 IV-V	2.17	1790	m
147	3 47 15.8	+59 03 50	15.26	3.50	2.73	1.90	0.92	0.32	0.86	1.26	f2 V	2.24	1010	
148	3 47 15.8	+59 03 30	17.11	3.75	2.94	2.07	1.08	0.35	0.92	1.39	f			
149	3 47 15.9	+59 14 44	14.29	5.17	4.27	3.06	1.40	0.52	1.23	1.88	g8.5 III	2.69	1460	
150	3 47 15.9	+59 04 50	17.09	3.60	2.85	2.03	1.08	0.37	0.89	1.31	a-f			
151	3 47 16.0	+59 12 12	17.55			2.42	0.96	0.45	1.04	1.44	k			
152	3 47 16.0	+59 03 06	14.90	3.52	3.07	2.09	0.85	0.40	0.87	1.15	k1.2 V	0.74	394	
153	3 47 16.3	+58 57 42	16.82		2.98	2.14	1.17	0.40	0.89	1.43	f-g			
154	3 47 16.3	+59 08 51	15.14	3.55	2.80	2.01	0.95	0.36	0.88	1.28	f8 IV	1.92	1270	
155	3 47 16.4	+59 03 28	15.99	3.82	2.93	2.09	1.06	0.37	0.93	1.41	f2 IV	2.53	1710	
156	3 47 16.5	+59 09 24	15.11	3.59	2.76	1.62	0.80	0.27	0.67	1.01	a4 V	2.42	2280	m:
157	3 47 16.5	+59 05 27	14.49	3.43	2.51	1.45	0.73	0.25	0.61	0.90	a1.5 V	2.20	1990	m:
158	3 47 16.6	+59 15 05	16.11		4.14	3.02	1.46	0.52	1.31	2.02	g8 III	3.03	2890	
159	3 47 17.6	+59 04 34	13.03	2.98	2.15	1.25	0.66	0.24	0.56	0.76	b9.5 IV-V	2.12	1320	
160	3 47 17.7	+59 05 21	14.09	3.28	2.41	1.37	0.70	0.24	0.57	0.83	a1.5 V	2.07	1840	m:
161	3 47 17.7	+59 09 53	17.69		2.61	1.59	0.79	0.29	0.75	1.09	a			
162	3 47 17.8	+59 13 42	17.14			3.19	1.37	0.54	1.38	2.12	k1 III	2.33	6640	
163	3 47 17.8	+58 59 49	15.61	4.24	3.41	2.51	1.21	0.44	1.17	1.76	g2 IV	2.61	1040	
164	3 47 18.9	+59 05 26	16.98	3.68	2.81	2.05	1.06	0.34	0.91	1.34	f4 V:			
165	3 47 19.1	+59 00 12	15.34	4.02	3.01	1.86	0.95	0.34	0.79	1.23	a2 IV	3.16	1880	m:
166	3 47 19.2	+59 11 51	14.54	3.63	2.86	2.06	0.98	0.37	0.88	1.25	f6 IV	2.20	900	
167	3 47 19.3	+58 56 34	16.74		2.97	2.08	1.05	0.38	0.97	1.45	f2 V	2.71	1600	m
168	3 47 19.7	+59 09 23	16.03	3.91	2.97	2.01	0.96	0.35	0.82	1.23	a8 V:	2.84	1460	m:
169	3 47 19.7	+58 59 28	16.59	4.36	3.23	2.11	1.05	0.37	0.91	1.41	a3 V:	3.34	3010	
170	3 47 19.8	+59 11 48	17.32		2.90	2.07	0.96	0.34	1.00	1.43	g			

Table 3. Continued

No.	RA(2000) h m s	DEC(2000) ° ′ ″	V mag	U–V mag	P–V mag	X–V mag	Y–V mag	Z–V mag	V–S mag	V–I mag	Photom. sp. type	A_V mag	d pc	Memb.
171	3 47 20.0	+58 56 46	17.39			2.34	1.22	0.44	1.08	1.67	g-k			
172	3 47 20.1	+59 08 01	17.47			2.25	1.07	0.40	1.03	1.51	g			
173	3 47 20.1	+59 07 32	16.79		3.59	2.51	1.00	0.55	0.98	1.31	k3.5 V	0.96	650	
174	3 47 20.6	+59 01 11	17.02			3.13	1.58	0.52	1.38	2.13	f-g			
175	3 47 20.6	+59 09 20	17.77:			2.40	1.12	0.46	1.07	1.57:				
176	3 47 20.7	+58 56 57	16.16	3.81	3.24	2.21	0.90	0.40	0.88	1.22	k0 V	1.04	650	
177	3 47 21.7	+59 01 17	17.57			2.45	1.11	0.40	1.17	1.72	k			
178	3 47 21.8	+59 06 34	17.44		2.97	2.15	1.17	0.39	0.96	1.51	f			
179	3 47 21.9	+59 05 23	17.41		3.02	2.13	1.07	0.39	0.99	1.50	f			
180	3 47 22.0	+58 56 39	17.57		3.30	2.45	1.13	0.45	1.10:	1.73	g			
181	3 47 22.2	+59 13 56	16.61			3.63	1.60	0.67	1.47	2.26	k			
182	3 47 22.4	+59 14 40	16.91		3.22	2.35	1.14	0.45	0.97	1.48	g4 V	2.32	2230	
183	3 47 22.4	+59 10 27	15.88	3.69	2.82	1.83	0.92	0.34	0.77	1.13	a8 V	2.51	1580	m
184	3 47 22.4	+59 10 53	14.56	3.39	2.53	1.49	0.73	0.25	0.60	0.86	a4 V	2.02	1550	m:
185	3 47 22.5	+59 05 19	15.42		4.96	3.50	1.48	0.57	1.39	2.09	k2 III	2.72	2640	
186	3 47 22.5	+59 06 58	17.20		2.84	2.10	1.06	0.34	0.97	1.38	f5 V	2.38	1830	m
187	3 47 22.9	+59 14 03	15.58	3.11	2.58	1.84	0.80	0.36	0.74	0.98	g7 V	0.68	820	
188	3 47 23.1	+59 06 41	14.98	3.53	2.66	1.59	0.79	0.28	0.61	0.93	a4 V	2.23	1700	m
189	3 47 23.2	+59 14 47	15.71	3.94	3.10	2.27	1.14	0.40	1.01	1.53	f5 V	2.85	740	
190	3 47 23.6	+59 07 40	17.12	3.52	2.81	2.02	1.01	0.32	0.97	1.39	f6 V	2.20	1840	m
191	3 47 23.7	+59 10 53	12.66	3.16	2.23	1.37	0.71	0.24	0.62	0.83	b9.5 III	2.31	1380	m:
192	3 47 23.7	+59 03 18	13.61	4.92	4.02	2.90	1.34	0.48	1.22	1.82	g5.5 II-III	2.80		
193	3 47 24.1	+59 10 25	17.32			2.69	1.30	0.50	1.11	1.66	g			
194	3 47 24.9	+59 06 29	13.65	3.17	2.29	1.32	0.68	0.24	0.57	0.82	a0 V	2.10	1480	m:
195	3 47 25.3	+58 58 49	17.42			2.88	1.36	0.55	1.29	2.05	k			
196	3 47 25.5	+59 08 19	16.36	3.69	2.90	2.10	1.07	0.37	0.93	1.37	f4 V	2.49	1280	
197	3 47 25.7	+59 07 46	15.56	3.40	2.50	1.52	0.78	0.28	0.63	0.94	a0 V	2.52	2950	
198	3 47 25.9	+59 05 18	16.84	3.65	2.73	1.78	0.91	0.30	0.78	1.14	a8 IV	2.35	3520	
199	3 47 26.0	+58 59 25	15.97	4.17	3.12	1.92	0.97	0.34	0.83	1.31	a2 IV, ap:	3.35	2320	
200	3 47 26.3	+59 14 16	17.45			2.45	1.28	0.49	1.02	1.59				
201	3 47 26.4	+59 15 24	16.00	3.79	2.89	1.91	0.94	0.33	0.79	1.21	a8 V	2.66	1560	m
202	3 47 27.1	+58 57 45	14.56	4.57	4.09	2.82	0.99	0.64	1.08	1.46	k5.5 V	0.87	181	
203	3 47 27.2	+59 09 29	15.88	3.60	2.76	1.80	0.91	0.31	0.79	1.15	a9 IV-V	2.37	1680	m
204	3 47 27.7	+59 03 11	17.79		2.90	2.25	1.23	0.38	1.00	1.47				
205	3 47 27.8	+58 58 41	16.58		3.30	2.20	1.11	0.44	0.87	1.43	a4 III	3.65	3000	
206	3 47 27.9	+59 00 53	16.87	3.99	2.97	2.16	1.05	0.40	0.97	1.41	f3 V	2.28	3300	
207	3 47 28.0	+59 02 45	16.43	3.67	2.92	2.07	0.99	0.37	0.91	1.36	f3 V	2.27	2090	m:
208	3 47 28.0	+59 08 05	16.29	3.76	2.92	2.05	1.03	0.37	0.90	1.32	f1 IV	2.49	1930	m
209	3 47 28.1	+59 06 05	15.36	3.51	2.63	1.60	0.78	0.27	0.69	1.03	a5 V	2.18	2370	
210	3 47 28.6	+59 13 09	17.31			3.03	1.18	0.68	1.32	1.85	k-m			
211	3 47 28.6	+59 09 55	16.37	3.65	2.79	1.94	0.92	0.34	0.88	1.29	f-g			
212	3 47 29.6	+59 13 22	17.20		2.97	2.21	1.05	0.35	0.94	1.46	G0 V	2.16	1410	m
213	3 47 29.6	+59 04 28	13.71	2.97	2.22	1.37	0.69	0.26	0.60	0.83	a5 V	1.84	1030	
214	3 47 29.7	+59 13 06	15.28	3.69	2.75	1.69	0.86	0.30	0.66	1.00	a4 V	2.47	1740	m
215	3 47 29.8	+59 00 16	14.72	3.85	2.76	1.67	0.86	0.31	0.76	1.13	a2 V	2.94	2170	m:
216	3 47 30.0	+59 07 20	14.99	3.51	2.65	1.56	0.74	0.26	0.62	0.94	a4 V, am:	2.20	1730	m
217	3 47 30.0	+59 09 27	15.27	3.64	2.77	1.78	0.87	0.29	0.78	1.15	a7 V	2.46	1320	m:
218	3 47 30.1	+59 11 56	16.33		4.19	2.96	1.36	0.53	1.23	1.85	k0 IV	2.69	1280	
219	3 47 30.2	+59 08 56	14.25	3.74	2.83	1.88	0.90	0.32	0.80	1.16	a9 IV	2.47	900	
220	3 47 30.3	+58 55 51	14.06	3.69	2.76	1.66	0.82	0.32	0.65	1.02	a4 V	2.45	1000	
221	3 47 31.0	+59 02 51	12.02	5.39	4.55	3.21	1.40	0.52	1.24	1.83	k2 III	2.08		
222	3 47 31.2	+59 07 00	17.20		2.89	2.09	1.09	0.34	0.95	1.40	f:			
223	3 47 31.3	+59 12 58	16.50	3.61	3.08	2.15	0.86	0.47	0.88	1.16	k2.2 V	0.62	770	
224	3 47 31.3	+59 09 38	15.46	3.64	2.74	1.71	0.82	0.29	0.68	1.03	a5 V, am:	2.38	1800	m
225	3 47 31.6	+59 09 08	16.92	3.80	2.95	2.11	1.08	0.35	0.93	1.33	f2 IV-V	2.55	1965	m
226	3 47 31.9	+59 03 52	17.67		2.93	2.25	1.20	0.48	1.01	1.44				
227	3 47 32.1	+59 02 17	14.29	3.39	2.47	1.46	0.74	0.26	0.63	0.91	a1 IV	2.38	1830	m
228	3 47 32.5	+58 58 47	15.94			3.06	1.42	0.55	1.34	2.07	g8 IV	3.02	920	
229	3 47 32.6	+59 01 40	13.23	3.17	2.31	1.37	0.70	0.26	0.60	0.85	b9.5 III-IV	2.32	1585	m
230	3 47 32.6	+59 05 33	17.74			2.47	1.07	0.41	1.14:	1.59	k			
231	3 47 33.1	+59 04 26	14.83	2.81	2.33	1.66	0.76	0.30	0.72	0.94	g0 V	0.81	880	
232	3 47 33.5	+59 11 22	13.99	3.27	2.40	1.46	0.76	0.27	0.64	0.93	b9.5 IV-V	2.51	1770	m
233	3 47 33.6	+59 04 25	14.87	3.86	2.93	1.97	0.96	0.34	0.85	1.23	a9 IV	2.68	1090	

Table 3. Continued

No.	RA(2000)	DEC(2000)	V	$U-V$	$P-V$	$X-V$	$Y-V$	Z_r-V	$V-S$	$V-I$	Photom.	A_V	d	Memb.
	h m s	° ′ ″	mag	mag	mag	mag	mag	mag	mag	mag	sp. type	mag	pc	
234	3 47 33.7	+59 15 35	17.43		2.95	2.16	1.14	0.38	0.92	1.40	g:			
235	3 47 33.8	+59 02 10	15.52	4.86	4.07	2.93	1.31	0.48	1.25	1.87	g6 III	2.74	2410	
236	3 47 34.1	+59 15 09	17.34			2.20	1.09	0.39	0.95	1.48	a			
237	3 47 34.4	+59 01 11	17.13	3.90	3.00	2.07	1.10	0.36	0.98	1.43				
238	3 47 34.9	+59 03 23	17.02	3.83	2.93	2.15	0.99	0.38	0.95	1.37	f			
239	3 47 35.0	+59 06 53	17.70		2.85	1.96	0.99	0.30	0.89	1.39	f			
240*	3 47 35.1	+59 07 59	12.07	3.37	2.34	1.42	0.75	0.26	0.64	0.90	b9.5 III	2.53	1480	
241	3 47 35.1	+59 14 04	15.38	3.42	2.71	1.97	0.96	0.37	0.89	1.26	f6 V	1.98	880	
242	3 47 35.2	+59 03 14	17.53		2.97	1.91	0.83	0.25	0.93	1.32				
243	3 47 35.6	+59 00 22	15.07	3.76	2.90	2.03	1.01	0.35	0.95	1.40	f2 V	2.61	780	
244	3 47 35.9	+59 01 50	15.00	3.55	2.63	1.56	0.78	0.28	0.67	0.98	a1.5 V	2.49	1910	m
245	3 47 36.0	+59 06 20	13.69	3.15	2.30	1.35	0.72	0.25	0.60	0.83	b9.5 IV-V	2.29	1670	m
246*	3 47 36.0	+59 05 33	11.19	2.55	1.94	1.00	0.41	0.17	0.34	0.39	a5 V	0.69	550	
247	3 47 36.3	+59 13 00	16.55	2.96	2.32	1.56	0.84	0.32	0.71	1.03	a-f			
248	3 47 36.4	+59 13 30	17.12		3.33	2.50	1.22	0.47	1.02	1.51	g0 V	2.87	980	
249	3 47 36.6	+59 10 19	14.13	2.66	2.17	1.51	0.67	0.26	0.65	0.81	f9.5 V	0.55	740	
250	3 47 37.0	+59 15 13	16.31	4.09	2.99	1.90	0.98	0.36	0.81	1.27	a2 V	3.20	2410	
251	3 47 37.2	+59 14 45	15.80	3.73	2.84	2.00	1.00	0.35	0.85	1.29	f2 IV	2.41	1610	
252	3 47 37.3	+59 05 34	16.74	3.88	2.95	2.00	1.02	0.34	0.92	1.40	a9 V	2.74	2400	m:
253	3 47 37.3	+58 56 34	15.16	3.79	2.83	1.67	0.86	0.31	0.73	1.12	a1.5 V	2.84	1760	m
254	3 47 37.5	+59 16 25	16.76			3.51	1.55	0.67	1.38	2.19	k1 III	2.97	4280	
255	3 47 37.5	+59 10 06	16.96	3.82	3.02	2.13	1.14	0.41	0.96	1.41	g:			
256	3 47 37.9	+59 01 31	13.77	3.52	2.66	1.63	0.75	0.28	0.67	0.97	a6 V, am:	2.19	830	
257	3 47 38.1	+59 09 03	14.56	3.54	2.62	1.56	0.80	0.28	0.64	0.94	a1 V	2.52	1620	m
258	3 47 38.2	+59 16 04	17.73			1.90	0.95	0.37	0.74:	1.19	a			
259	3 47 38.2	+58 58 12	16.50	4.01	3.12	2.01	1.02	0.38	0.90	1.41	a7 V	3.08	1750	m:
260	3 47 38.3	+59 09 39	15.41	3.58	2.72	1.70	0.85	0.31	0.69	1.03	a5 V	2.35	1790	m
261	3 47 38.8	+59 02 06	17.33		3.10	2.18	1.19	0.47	0.93	1.40				
262	3 47 38.9	+59 00 57	16.48	3.81	3.03	2.01	0.97	0.36	0.89	1.34	f			
263	3 47 39.2	+59 14 53	16.39			3.19	1.45	0.56	1.24	1.91	k0 III	2.67	4020	
264	3 47 39.2	+59 02 11	15.72	3.44	2.75	1.95	0.94	0.34	0.91	1.28	f6 V	2.01	1020	
265	3 47 39.3	+59 04 54	17.45		2.93	2.10	0.92	0.38	0.95	1.34	g			
266	3 47 39.6	+59 15 46	15.51	4.99	4.16	2.99	1.38	0.50	1.25	1.89	g6 III	2.89	2240	
267	3 47 39.7	+59 09 04	13.43	3.23	2.35	1.42	0.73	0.26	0.61	0.87	b9.5 IV	2.39	1510	m
268	3 47 40.4	+59 11 47	16.73	3.71	2.91	2.03	0.99	0.36	0.93	1.36	f2 V	2.02	3490	
269	3 47 41.1	+59 04 09	15.59	3.58	2.73	1.71	0.82	0.29	0.70	1.03	a6 V	2.34	1780	m
270	3 47 41.2	+59 03 32	17.02	3.65	2.90	2.06	1.10	0.42	0.91	1.29	f			
271	3 47 41.3	+59 10 08	17.46			2.72	1.27	0.45	1.18	1.73	g-k			
272	3 47 41.8	+59 08 59	17.08		3.36	2.37	1.04	0.39	1.01	1.46	g8 III-IV			
273	3 47 42.1	+58 55 42	14.24	3.43	2.53	1.42	0.77	0.30	0.60	0.95	a1.5 V	2.25	1510	
274	3 47 42.2	+58 59 32	16.27	4.30	3.28	2.14	1.11	0.41	0.91	1.44	a4 V	3.62	1620	
275	3 47 42.5	+59 01 12	15.51	3.94	2.93	1.81	0.88	0.32	0.77	1.19	a3 V	2.88	2220	m:
276	3 47 42.8	+59 16 20	14.16	2.97	2.57	1.78	0.74	0.34	0.70	0.92	g9 V	0.28	432	
277*	3 47 42.8	+59 06 17	11.38	2.33	1.79	1.18	0.66	0.22	0.58	0.73	b4 III-IV	2.41		m:
278	3 47 42.8	+59 08 06	13.57	3.22	2.35	1.43	0.75	0.26	0.61	0.90	b9.5 IV-V	2.42	1500	m
279	3 47 43.1	+59 03 52	14.42	3.37	2.48	1.44	0.75	0.25	0.59	0.87	a2 V	2.12	1660	m:
280	3 47 43.2	+59 15 06	15.59	3.79	2.89	1.82	0.87	0.31	0.74	1.12	a5 V, am:	2.65	1690	m
281*	3 47 43.3	+59 06 14	13.41	3.38	2.49	1.42	0.76	0.27	0.61	0.89	a1 V	2.27	1070	
282	3 47 43.5	+59 03 50	15.33	3.54	2.67	1.63	0.78	0.28	0.65	0.96	a5 V, am:	2.22	1830	m
283	3 47 43.5	+58 58 16	16.99		2.91	1.72	0.87	0.29	0.75	1.17	a2 IV	2.82	4720	
284	3 47 43.5	+58 57 03	16.01			3.63	1.67	0.61	1.52	2.41	k0 III	3.66	2130	
285	3 47 43.7	+59 13 46	15.98	4.59	3.79	2.70	1.21	0.51	1.14	1.67	g9 IV	2.07	1450	
286	3 47 44.1	+59 01 09	15.47	5.67	4.70	3.36	1.52	0.55	1.42	2.16	g9 III	3.22	2010	
287	3 47 44.2	+59 12 57	16.71	3.62	3.05	2.21	0.99	0.35	1.00	1.43	g3 V:	1.91	1030	
288	3 47 44.2	+59 04 51	14.58	3.61	2.81	2.01	1.01	0.35	0.88	1.30	f4 IV	2.27	940	
289	3 47 44.7	+58 56 27	17.16			2.27	1.12	0.39	1.04	1.62	f5 V	2.74	1530	m
290	3 47 44.9	+59 09 46	17.29		2.88	2.12	1.01	0.39	0.96	1.39	g			
291	3 47 45.0	+59 14 39	14.95	3.55	2.87	2.06	0.95	0.35	0.89	1.24	f9.5 IV	1.82	1170	
292	3 47 45.0	+59 04 59	15.87	3.51	2.85	2.07	1.02	0.34	0.95	1.38	f9 V	1.97	890	
293	3 47 45.0	+59 06 01	17.44		3.09	2.09	1.02	0.33	0.87	1.37	a-f			
294	3 47 45.1	+59 04 36	15.85	4.94	3.96	2.88	1.33	0.46	1.21	1.82	g, mdg:			
295	3 47 45.3	+59 00 14	14.40	3.57	2.64	1.62	0.82	0.30	0.72	1.08	a0 IV-V	2.74	1725	m
296	3 47 45.5	+59 15 12	16.74		2.99	2.11	1.12	0.37	0.92	1.38				

Table 3. Continued

No.	RA(2000)	DEC(2000)	V	$U-V$	$P-V$	$X-V$	$Y-V$	$Z-V$	$V-S$	$V-I$	Photom.	A_V	d	Memb.
	h m s	° ′ ″	mag	mag	mag	mag	mag	mag	mag	mag	sp. type	mag	pc	
297	3 47 45.6	+58 59 56	15.87	4.05	3.04	1.88	0.93	0.32	0.82	1.27	a3 V	3.08	2380	
298	3 47 46.3	+59 16 22	17.25			2.45	1.14	0.44	1.00	1.62	g			
299	3 47 46.5	+59 10 57	16.10	3.90	3.05	2.15	1.05	0.38	0.96	1.44	f3 III	2.62	2270	
300	3 47 46.8	+59 05 37	11.93	5.09	4.27	3.03	1.33	0.48	1.18	1.72	k0 III	2.24		
301	3 47 46.8	+59 06 44	15.34	3.61	2.73	1.66	0.81	0.28	0.63	0.98	a4 V	2.38	1870	m
302	3 47 46.9	+59 05 56	14.15	2.73	2.23	1.51	0.69	0.26	0.66	0.84	f8 V	0.77	750	
303	3 47 47.0	+59 04 27	16.02	3.66	2.74	1.82	0.91	0.31	0.82	1.18	a9 V	2.36	2140	m:
304	3 47 47.3	+59 05 05	15.55	3.64	2.72	1.70	0.86	0.29	0.71	1.05	a5 V	2.39	1870	m
305	3 47 47.5	+58 58 13	15.36	3.75	2.79	1.66	0.81	0.30	0.68	1.04	a2 V, ap:	2.67	1980	
306	3 47 47.7	+59 04 18	15.89	3.55	2.73	1.75	0.85	0.30	0.75	1.10	a8 V	2.32	1740	m
307	3 47 47.7	+59 08 09	17.59			2.00	1.09	0.39	0.87	1.30				
308	3 47 47.8	+59 13 56	15.69	3.64	2.75	1.67	0.82	0.28	0.67	1.02	a4 V	2.43	2150	m:
309	3 47 48.0	+59 04 31	16.62	3.55	2.86	2.01	1.02	0.38	0.87	1.26	f3 V	2.13	2420	
310	3 47 48.0	+59 05 02	14.97	3.57	2.79	1.93	0.97	0.34	0.86	1.26	f1 V	2.48	840	
311	3 47 48.0	+59 03 51	17.65		3.00	2.20	1.11	0.34	1.02	1.45	f			
312	3 47 48.5	+59 02 10	16.05	3.58	2.79	1.92	0.95	0.34	0.86	1.27	f1 V	2.39	1450	m
313	3 47 48.6	+59 10 00	16.88		2.93	1.84	0.97	0.37	0.75	1.17	a1 V	3.16	3490	
314	3 47 48.7	+59 05 46	16.59	3.75	2.80	1.72	0.79	0.23	0.70	1.08	a			
315	3 47 49.1	+58 59 34	13.10	3.56	2.56	1.58	0.83	0.30	0.71	1.06	a0 III	2.74	1290	m:
316	3 47 49.2	+59 08 27	13.61	3.15	2.30	1.42	0.75	0.26	0.63	0.91	b8.5 V	2.45	1710	m
317	3 47 49.2	+59 08 07	16.81	3.76	2.95	2.05	1.06	0.34	0.93	1.38	f2 V	2.64	1710	m
318	3 47 49.9	+58 56 21	12.76	4.47	3.61	2.52	1.22	0.46	1.11	1.65	g2 III			
319	3 47 50.2	+59 07 03	15.19	3.60	2.72	1.63	0.81	0.27	0.62	0.96	a4 V	2.35	1770	m
320	3 47 50.3	+58 58 39	16.36	3.91	3.10	2.21	1.13	0.41	1.00	1.53	f3 V	2.97	1110	
321	3 47 50.4	+59 16 30	17.60			2.15	1.22	0.46	0.94:	1.52				
322	3 47 50.4	+59 01 20	14.40		5.83	4.13	1.69	0.73	1.59	2.47	k4.2 III	2.98	1640	
323	3 47 50.4	+58 56 33	17.52			2.36	1.25	0.51	1.11	1.68				
324*	3 47 50.7	+59 04 00	11.31	2.13	1.73	1.21	0.67	0.24	0.76	0.84	b2 IV-V	2.77		m:
325	3 47 50.7	+59 13 19	16.40	3.75	3.00	2.20	1.09	0.41	0.97	1.43	f6 V	2.52	1100	
326	3 47 50.9	+59 06 22	16.43	3.69	2.77	1.75	0.89	0.26	0.75	1.13	a6 IV	2.43	3230	
327	3 47 50.9	+59 00 32	16.41	4.01	3.31	2.37	1.16	0.46	1.02	1.57	g0 IV	2.53	1650	
328	3 47 51.2	+59 12 00	15.86	3.59	2.71	1.78	0.89	0.33	0.80	1.12	a9 V	2.27	2070	m:
329	3 47 51.2	+59 11 53	17.50		3.08	2.17	1.10	0.34	0.99	1.46	f			
330	3 47 51.4	+59 10 42	17.23			2.95	1.38	0.51	1.32	1.99	g			
331	3 47 51.5	+59 04 14	15.27	3.92	2.83	1.74	0.89	0.31	0.78	1.17	a2 V	3.01	2590	
332	3 47 51.6	+59 14 08	15.41	3.81	2.85	1.77	0.86	0.32	0.71	1.09	a4 V	2.67	1690	m
333	3 47 51.7	+58 58 47	16.57			2.92	1.09	0.69	1.17	1.63	k7 V	0.56	400	
334	3 47 51.9	+59 07 14	17.70		2.99	2.13	1.12	0.38	0.99	1.46				
335	3 47 51.9	+59 09 06	15.17	3.63	2.78	1.76	0.88	0.31	0.71	1.10	a5 V	2.40	1830	m
336	3 47 51.9	+58 58 06	17.48		3.09	2.16	1.01	0.38	0.97	1.46	f			
337	3 47 51.9	+59 01 03	13.12	3.03	2.52	1.74	0.75	0.31	0.74	0.95	g5 V	0.68	295	
338	3 47 52.0	+59 01 35	15.00	3.63	2.71	1.60	0.80	0.29	0.65	0.99	a3 V	2.41	1730	m
339	3 47 52.0	+59 15 04	13.27	4.04	3.49	2.35	0.94	0.43	0.91	1.17	k2 V	1.08	144	
340	3 47 52.4	+59 04 20	14.71	3.38	2.52	1.46	0.73	0.25	0.59	0.89	a3 V	2.05	1780	m:
341	3 47 52.5	+59 03 53	13.68	3.19	2.31	1.33	0.70	0.24	0.57	0.82	a0 IV	2.25	1690	m
342	3 47 52.7	+59 04 46	13.22	3.31	2.33	1.38	0.73	0.25	0.61	0.88	a0 III	2.33	1650	m
343	3 47 52.7	+59 00 13	17.61		2.94	1.90	0.95	0.36	0.76	1.19	a			
344	3 47 53.0	+59 06 26	16.39	4.02	3.33	2.44	1.24	0.39	1.12	1.66	f9 V	2.84	760	
345	3 47 53.2	+58 59 00	16.26	3.60	3.03	2.06	0.83	0.38	0.86	1.14	k0 V	0.77	770	
346	3 47 53.5	+59 11 43	17.04	3.62	2.65	1.65	0.83	0.29	0.70	1.05	a			
347	3 47 53.6	+59 16 15	16.39	3.77	2.91	2.07	1.04	0.38	0.91	1.44	f2 IV	2.47	2110	m
348	3 47 53.6	+59 03 47	17.38	3.54	3.01	2.05	1.05	0.38	0.93	1.36	g			
349	3 47 53.7	+59 03 53	14.22	3.29	2.40	1.37	0.72	0.25	0.58	0.86	a1 V	2.12	1670	m:
350	3 47 53.8	+59 06 56	14.76	3.59	2.68	1.57	0.80	0.27	0.62	0.97	a1.5 V	2.54	2020	
351	3 47 53.9	+59 07 02	14.87	3.52	2.64	1.58	0.80	0.27	0.64	0.99	a4 V	2.24	1610	m
352	3 47 53.9	+59 06 20	15.95	4.57	3.92	2.74	1.28	0.49	1.14	1.71	g8.5 IV	2.47	1190	
353	3 47 54.0	+59 09 22	13.86	3.41	2.52	1.52	0.76	0.27	0.64	0.94	a5 V	1.99	1300	
354	3 47 54.1	+59 15 04	17.08		3.01	2.05	1.09	0.38	0.90	1.36	A0 V	3.84	3010	
355	3 47 54.3	+59 00 25	17.24		2.91	1.75	0.82	0.28	0.77	1.19	a			
356	3 47 54.3	+59 01 36	13.05	3.28	2.39	1.42	0.73	0.26	0.61	0.90	a0 V	2.30	1020	
357	3 47 54.4	+58 57 31	17.20			2.55	1.24	0.45	1.14	1.63	g1 V	2.88	910	
358	3 47 54.5	+59 05 15	17.70			1.92	1.03	0.34	0.84	1.28				
359	3 47 54.6	+59 06 52	15.50	3.63	2.76	1.68	0.83	0.26	0.68	1.04	a4 V	2.45	1950	m

Table 3. Continued

No.	RA(2000) h m s	DEC(2000) ° ′ ″	V mag	$U–V$ mag	$P–V$ mag	$X–V$ mag	$Y–V$ mag	$Z–V$ mag	$V–S$ mag	$V–I$ mag	Photom. sp. type	A_V mag	d pc	Memb.
360	3 47 54.6	+59 03 45	17.05	3.57	2.84	2.06	1.06	0.40	0.91	1.31	f6 V	2.22	1710	m
361	3 47 55.0	+59 00 08	17.31			2.53	1.23	0.47	1.11	1.71	g			
362	3 47 55.1	+59 08 11	16.04	3.83	2.88	1.88	1.00	0.33	0.80	1.22	b9.5 V	3.45	2570	
363	3 47 55.3	+59 00 05	17.58			2.14	1.05	0.37	0.99	1.52	f			
364	3 47 56.0	+58 56 58	13.65	2.96	2.46	1.68	0.75	0.30	0.73	0.96	g5.5 V	0.58	396	
365	3 47 56.2	+58 58 48	14.95	3.69	2.79	1.75	0.86	0.34	0.71	1.09	a5 V	2.49	1360	m:
366	3 47 56.2	+58 55 49	16.50		3.09	2.01	1.02	0.39	0.89	1.37	a6 V	3.32	3370	
367	3 47 56.3	+59 01 03	14.76	3.48	2.58	1.50	0.75	0.27	0.63	0.94	a1.5 V	2.36	1810	m
368	3 47 56.3	+58 58 30	15.42	3.67	2.77	1.65	0.83	0.28	0.68	1.04	a3 V	2.53	1990	m
369	3 47 56.5	+59 02 27	14.42	3.52	2.56	1.53	0.78	0.28	0.65	0.96	a1 V	2.46	1560	m
370*	3 47 56.5	+59 06 42	12.45	3.66	2.47	1.47	0.79	0.28	0.65	0.96	a3			
371	3 47 56.6	+59 04 17	17.75		2.93	1.89	0.88	0.32	0.80	1.25	a			
372*	3 47 56.8	+59 06 39	13.42	3.26	2.38	1.39	0.74	0.25	0.60	0.88	a0 V	2.27	1230	m:
373	3 47 56.8	+59 13 10	17.35		2.98	2.03	1.01	0.37	0.94	1.42	f			
374	3 47 56.8	+59 15 44	17.51			2.36	1.19	0.43	1.09	1.62	a			
375	3 47 56.9	+59 07 22	17.03	3.53	3.01	2.09	1.07	0.37	0.92	1.33	f8 V	2.34	1370	m:
376	3 47 57.0	+59 02 41	17.65		2.86	1.81	0.86	0.30	0.82	1.27	a			
377	3 47 57.1	+59 05 41	17.64		3.17	2.27	1.19	0.39	1.03	1.52	f			
378*	3 47 57.5	+58 56 56	9.41	5.48	4.68	3.38	1.32	0.62	1.21		k5: III	1.04:	430:	
379	3 47 57.6	+59 00 16	16.92		3.90	2.68	1.02	0.60	1.04	1.41	k4.5 V	0.96	610	
380	3 47 57.7	+58 57 55	16.61			2.69	1.23	0.49	1.16	1.74	g, sd:			
381	3 47 57.7	+58 57 39	15.53	3.69	2.78	1.70	0.86	0.29	0.73	1.12	a4 V	2.52	1860	m
382	3 47 57.8	+59 08 24	17.21		3.04	2.20	1.09	0.38	0.97	1.43	f5 V	2.72	1710	m
383	3 47 57.9	+59 10 01	12.40	3.28	2.28	1.37	0.72	0.26	0.62	0.86	b9.5 III	2.40	1250	m:
384	3 47 57.9	+59 10 43	16.54			3.66	1.57	0.64	1.50	2.30	k2 III	2.77	4470	
385	3 47 58.0	+59 03 59	16.25	3.71	2.85	1.97	0.96	0.36	0.90	1.31	f1 V	2.09	2830	
386	3 47 58.2	+59 08 06	16.05	3.74	2.88	1.82	0.95	0.28	0.80	1.22	b9.5 V	2.68	2590	
387	3 47 58.2	+59 05 39	17.63		3.07	2.29	1.22	0.45	0.99	1.46	a-f			
388	3 47 58.7	+58 59 22	15.48	3.88	2.88	1.86	0.92	0.33	0.80	1.22	a6 III	2.50	2340	m:
389	3 47 58.7	+58 56 41	14.91	2.82	2.29	1.60	0.75	0.30	0.74	0.99	f9 V	0.86	960	
390	3 47 58.9	+58 57 05	14.89	3.08	2.52	1.74	0.79	0.34	0.75	0.99	g2 V	1.01	700	
391	3 47 58.9	+59 04 04	16.62	3.67	2.61	1.64	0.83	0.27	0.76	1.15	a-f			
392	3 47 59.0	+58 59 04	17.06		2.89	2.11	1.08	0.36	0.99	1.43	f5 V	2.46	1660	m
393	3 47 59.4	+59 05 59	17.05			3.08	1.46	0.51	1.32	1.98	k			
394	3 47 59.4	+59 01 03	16.01	3.91	2.90	1.88	0.95	0.37	0.74	1.17	a5 V	2.78	1930	m
395	3 47 59.8	+58 57 02	14.82	4.02	3.53	2.35	0.91	0.49	0.92	1.22	k3.5 V	0.71	296	
396	3 48 00.1	+59 08 04	15.41	3.63	2.79	1.70	0.84	0.28	0.69	1.05	a4 V	2.49	1840	m
397	3 48 00.4	+59 13 25	16.56			2.90	1.38	0.48	1.30	1.94	g2.5 III	3.20	2990	
398	3 48 00.6	+59 14 28	16.25	3.84	2.92	2.11	1.04	0.36	0.96	1.40	f2 IV	2.56	1900	m
399	3 48 00.7	+59 06 02	15.91	3.80	2.93	1.82	0.89	0.30	0.76	1.18	a3 V	2.85	2140	m:
400	3 48 00.7	+59 05 52	16.90		3.04	2.21	1.08	0.34	1.05	1.55	f9 V	2.36	1200	m:
401	3 48 00.8	+59 04 10	17.16		2.91	2.06	1.11	0.38	0.96	1.40	a-f			
402	3 48 00.9	+59 11 10	17.54			2.38	1.14	0.43	1.09	1.58	g			
403	3 48 01.0	+59 03 13	16.49	3.73	3.07	2.23	1.06	0.42	1.01	1.46	g1.5 V	2.13	920	
404	3 48 01.5	+59 11 06	16.54	3.89	2.93	1.92	0.97	0.34	0.89	1.32	a7 V	2.78	2700	
405	3 48 01.5	+59 06 39	16.02	3.76	2.94	2.02	1.03	0.34	0.91	1.36	f1 V	2.67	1260	m:
406	3 48 01.7	+59 16 04	16.70			3.13	1.49	0.60	1.31	2.01	k0 IV	3.03	1300	
407	3 48 01.8	+58 58 01	14.39	3.72	2.72	1.65	0.83	0.30	0.70	1.06	a2 IV	2.65	1540	m
408	3 48 02.2	+59 03 47	17.22		2.96	2.17	1.09	0.43	0.91	1.39	f6 V	2.41	1690	
409	3 48 02.2	+59 07 43	15.74	3.65	2.78	1.78	0.92	0.31	0.75	1.12	a7 V	2.47	1640	m
410	3 48 02.2	+59 04 23	17.04	3.88	2.97	2.16	1.11	0.41	0.95	1.40	f4 V	2.65	1925	m
411	3 48 02.5	+59 10 49	16.90		3.11	2.21	1.10	0.41	0.95	1.43	f1 V	2.83	2190	m:
412	3 48 02.5	+58 58 48	15.93			3.25	1.46	0.55	1.33	2.06	g9.5 III	2.95	2810	
413	3 48 02.8	+59 03 43	15.97	3.57	2.78	1.93	0.95	0.36	0.87	1.27	f2 V	2.33	1340	m:
414	3 48 02.8	+59 06 11	14.00	3.40	2.51	1.47	0.76	0.27	0.62	0.93	a1 V	2.32	1370	m:
415	3 48 03.1	+59 00 50	16.61	3.50	2.84	2.08	1.02	0.36	0.95	1.36	f8 V	2.05	1300	
416	3 48 03.2	+59 08 22	14.28	3.44	2.55	1.50	0.77	0.26	0.62	0.92	a1.5 V	2.41	1800	m
417	3 48 03.2	+59 05 05	14.04	3.24	2.38	1.37	0.70	0.26	0.57	0.84	a1 IV-V	2.07	1650	m:
418	3 48 03.3	+59 02 05	15.27	3.83	2.80	1.71	0.87	0.31	0.73	1.12	a2 V	2.81	2150	m:
419	3 48 03.6	+59 00 21	16.93			2.91	1.41	0.47	1.28	1.99	g7 III	2.98	4210	
420	3 48 03.7	+58 56 18	17.72			2.16	1.01	0.36	1.07	1.56	g			
421	3 48 03.8	+59 09 25	16.95			2.91	1.31	0.56	1.19	1.84	k0 IV	2.29	2050	
422	3 48 03.9	+59 00 16	17.52		2.69	1.61	0.81	0.25	0.74	1.21	a			
423	3 48 04.0	+59 01 28	16.28			4.31	1.77	0.76	1.69	2.68	k5-m0 III			
424	3 48 04.0	+59 02 53	17.03			3.10	1.45	0.57	1.29	2.01	k0 IV	2.86	1640	
425	3 48 04.1	+59 04 12	14.93	3.64	2.72	1.64	0.83	0.30	0.68	1.05	a4 V	2.41	1530	m
426	3 48 04.1	+59 06 12	16.99			2.85	1.20	0.67	1.45	2.28	m2 V:	0.45	212	
427	3 48 04.2	+58 56 22	17.48			2.51	1.16	0.52	1.07	1.56	g-k			
428	3 48 04.5	+59 14 40	17.07		3.10	2.25	1.00	0.40	0.96	1.38	g7 V	1.69	1020	
429	3 48 04.6	+59 07 14	17.41			3.19	1.52	0.55	1.30	2.01	g			
430	3 48 05.2	+59 02 24	17.31		2.86	2.13	1.00	0.32	1.05	1.54	g			
431	3 48 05.7	+59 08 13	12.55	3.31	2.34	1.41	0.74	0.25	0.62	0.89	b9.5 III	2.49	1180	m:
432	3 48 05.7	+59 14 27	14.04		6.12	4.49	1.87	0.79	1.67	2.65	k7 III	3.30	1480	
433	3 48 05.7	+59 07 18	15.66	3.52	2.92	2.10	1.01	0.37	0.91	1.30	f9 V	2.00	800	
434*	3 48 05.7	+59 15 31	11.55	2.76	2.30	1.59	0.69	0.27	0.68	0.80	g4 V	0.40	180	
435	3 48 06.0	+58 57 20	16.87	3.48	2.83	1.97	1.04	0.40	0.89	1.34	f			
436	3 48 06.2	+59 10 36	15.12	3.59	2.67	1.61	0.80	0.28	0.66	0.98	a4 V	2.32	1740	m
437	3 48 06.6	+59 05 59	17.35		2.97	2.17	1.08	0.36	0.97	1.42	f			
438	3 48 06.6	+59 04 26	16.80	3.64	2.83	1.95	0.95	0.35	0.89	1.33	f1 V	2.48	1970	
439	3 48 06.8	+59 08 01	16.56	3.68	3.02	2.08	1.05	0.33	0.99	1.44	f2 V	2.70	1490	m
440	3 48 06.8	+59 10 28	16.93		3.07	2.23	1.20	0.41	1.03	1.55	f:			
441	3 48 06.8	+59 05 06	13.62	3.34	2.42	1.43	0.76	0.28	0.63	0.92	a0 IV	2.41	1520	m
442	3 48 06.9	+59 10 06	13.74	3.23	2.37	1.41	0.70	0.28	0.63	0.89	a5 IV, ap	1.73	1390	
443	3 48 07.0	+59 13 13	17.20	3.69	2.99	2.18	1.04	0.40	1.00	1.44	g0 V	2.19	1430	m:
444	3 48 07.1	+59 06 47	14.44	3.25	2.44	1.39	0.71	0.26	0.56	0.83	a1 V	2.11	1850	m:
445	3 48 07.2	+59 01 44	15.91	4.23	2.95	1.87	0.99	0.36	0.84	1.30	a			
446	3 48 07.2	+59 09 59	16.14	3.23	2.48	1.64	0.89	0.30	0.80	1.18	a			
447	3 48 07.3	+58 56 54	14.18	3.50	2.51	1.45	0.78	0.29	0.63	0.93	a1 IV	2.50	1620	m
448	3 48 07.3	+59 01 04	16.63	3.87	3.02	2.05	1.02	0.40	0.91	1.38	f0 V	2.85	1640	m
449	3 48 07.6	+59 12 12	16.31	4.18	3.76	2.58	0.94	0.57	1.02	1.36	k4.5 V	0.70	520	
450	3 48 07.7	+59 13 01	16.90			2.67	1.17	0.46	1.15	1.69	g9.5 IV	2.10	2180	
451	3 48 07.8	+59 04 34	14.46	3.49	2.59	1.55	0.81	0.29	0.67	0.99	a1 V	2.49	1560	m
452	3 48 07.9	+59 03 41	14.75	3.15	2.47	1.70	0.84	0.31	0.74	1.05	f3 V	1.65	970	
453	3 48 08.1	+59 02 39	14.78	3.57	3.10	2.10	0.82	0.41	0.83	1.06	k2 V	0.57	363	
454	3 48 08.5	+59 02 56	17.45		2.79	2.06	0.90	0.41	0.98	1.40	g-k			
455	3 48 08.5	+59 05 51	16.25		3.02	2.08	1.03	0.35	1.01	1.51	f1 IV-V	2.51	1730	m
456	3 48 08.6	+59 04 19	17.13		2.80	1.88	0.90	0.33	0.90	1.30	f			
457	3 48 08.7	+59 03 11	15.09	3.47	2.59	1.56	0.77	0.27	0.61	0.92	a4 V	2.15	1850	m:
458	3 48 08.7	+59 04 02	17.27		2.68	1.64	0.95	0.34	0.65	1.03				
459	3 48 08.8	+59 10 47	17.26		3.10	2.27	1.16	0.42	1.10	1.63	f			
460	3 48 08.9	+59 03 57	16.43	3.51	2.98	2.11	0.96	0.37	0.93	1.32	g5.5 V	1.56	910	
461	3 48 09.0	+58 56 28	16.29	3.73	2.91	1.92	0.98	0.41	0.83	1.26	a9 V	2.64	1630	m
462	3 48 09.3	+59 00 31	13.84	3.36	2.44	1.48	0.79	0.27	0.65	0.96	b9.5 IV	2.66	1720	m
463	3 48 09.5	+59 05 13	15.36	3.99	3.03	2.09	1.05	0.38	0.95	1.43	f3 III	2.55	1620	
464	3 48 09.5	+59 00 24	15.95	4.03	2.92	1.82	0.92	0.32	0.81	1.24	a2 V	3.10	3230	
465	3 48 09.5	+59 12 52	17.40			3.04	1.20	0.70	1.23	1.74	m			
466	3 48 09.7	+59 07 32	17.11		3.08	2.18	1.12	0.44	0.87	1.35	f			
467	3 48 09.9	+59 01 41	14.24	3.59	2.62	1.57	0.82	0.29	0.68	1.02	a1 IV	2.69	1550	m
468	3 48 10.1	+58 59 50	16.43	3.79	3.01	2.13	1.06	0.40	0.96	1.46	f3 V	2.70	1290	m:
469	3 48 10.2	+59 10 14	16.56			2.84	1.35	0.50	1.19	1.79	g			
470	3 48 10.4	+58 57 37	17.72			2.01	1.00	0.37	0.98:	1.45	f			
471	3 48 11.1	+59 04 13	13.81	2.79	2.27	1.58	0.69	0.28	0.67	0.84	g1.5 V	0.56	560	
472	3 48 11.2	+59 09 12	15.12	4.67	3.80	2.76	1.32	0.47	1.18	1.78	g3 III	2.80	1870	
473	3 48 11.6	+59 10 51	16.56	4.21	3.30	2.42	1.18	0.40	1.14	1.67	f-g, mdg:			
474	3 48 11.9	+59 12 45	13.27	2.83	2.27	1.57	0.70	0.30	0.65	0.82	f9 IV	0.71	910	
475*	3 48 12.1	+59 11 09	10.94	2.65	1.98	1.02	0.42	0.18	0.36	0.40	a5 V, am:	0.79	467	
476	3 48 12.2	+59 05 08	15.84	3.79	2.83	1.80	0.87	0.31	0.77	1.16	a6 V	2.59	1780	m
477	3 48 12.2	+59 06 17	15.32	3.56	2.69	1.65	0.83	0.31	0.67	1.02	a5 V	2.28	1770	m
478	3 48 12.4	+59 10 51	17.66		2.97	2.06	1.08	0.37	0.98	1.46	f			
479	3 48 12.4	+59 01 25	13.37	3.33	2.46	1.50	0.77	0.28	0.64	0.96	b9.5 V	2.59	1110	m:
480	3 48 12.5	+59 12 34	17.36		3.02	2.11	1.15	0.37	1.00	1.48				
481	3 48 12.6	+59 09 04	16.19		4.30	2.87	1.29	0.53	1.18	1.73	k1 IV	2.03	1630	
482	3 48 12.7	+59 10 34	16.85	3.78	2.98	2.17	1.05	0.41	0.95	1.43	f6 V	2.29	2350	
483	3 48 12.9	+58 56 46	17.07			2.23	1.16	0.39	1.06	1.59	a-f			
484	3 48 13.2	+59 04 35	16.43	3.63	2.81	2.07	1.06	0.41	0.94	1.43	f5 IV-V	2.54	1560	m
485	3 48 13.3	+58 58 42	16.00	4.02	3.58	2.47	0.96	0.51	0.99	1.37	k3.2 V	1.02	455	

Table 3. Continued

No.	RA(2000) h m s	DEC(2000) ° ′ ″	V mag	$U-V$ mag	$P-V$ mag	$X-V$ mag	$Y-V$ mag	$Z-V$ mag	$V-S$ mag	$V-I$ mag	Photom. sp. type	A_V mag	d pc	Memb.
486	3 48 13.5	+59 04 35	16.77	3.56	2.78	2.00	1.00	0.38	0.90	1.29	f4 V	2.27	1710	m
487	3 48 13.6	+58 59 33	15.45	3.71	2.75	1.65	0.82	0.29	0.68	1.04	a3 V	2.53	2010	m
488	3 48 13.7	+59 07 21	16.38	3.58	2.79	1.89	0.97	0.34	0.84	1.25	f1 V	2.37	1710	m
489	3 48 14.0	+59 04 27	15.12		5.02	3.49	1.50	0.61	1.32	1.96	k2.2 III	2.59	2450	
490	3 48 14.0	+59 13 38	14.22	2.85	2.33	1.61	0.71	0.29	0.69	0.85	g2 V	0.60	640	
491	3 48 14.2	+59 12 16	16.09	3.69	2.84	1.92	0.95	0.34	0.85	1.26	f0 V	2.54	1480	m
492	3 48 14.3	+59 02 32	16.26		3.80	2.65	1.29	0.52	1.16	1.81	f-g			
493	3 48 14.4	+58 57 31	17.12			2.21	1.22	0.47	0.92	1.44				
494	3 48 14.5	+59 12 14	16.16	3.99	3.43	2.36	0.91	0.47	0.93	1.19	k2.7 V	0.98	530	
495	3 48 14.6	+59 05 37	17.25	3.70	2.94	2.08	1.05	0.37	0.95	1.41	f3 V	2.57	2010	m
496	3 48 15.0	+59 02 07	16.92		2.96	1.94	0.98	0.39	0.77	1.25	a3 V	2.90	2780	
497	3 48 15.0	+59 03 36	15.13	3.55	2.67	1.62	0.80	0.29	0.67	1.00	a5 V	2.24	1650	m
498	3 48 15.0	+59 11 28	17.23			2.77	1.37	0.51	1.21	1.79	g2 V:			
499	3 48 15.1	+59 03 59	14.23	3.28	2.41	1.40	0.73	0.26	0.58	0.86	a0 V	2.29	1770	m
500	3 48 15.1	+59 15 27	16.11	3.67	2.77	1.88	0.94	0.33	0.84	1.23	f0 V	2.32	2080	m:
501	3 48 15.1	+59 00 32	14.69:	3.86	2.87	1.79	0.96	0.40:	0.65:	1.11:	a1 V:			
502	3 48 15.5	+59 05 33	16.85			3.03	1.25	0.77	1.19	1.77	m2 V:	0.53	171	
503	3 48 15.5	+59 04 03	16.78			2.73	1.37	0.51	1.26	1.90	g5 IV	3.07	1380	
504	3 48 16.1	+58 57 17	16.20			2.94	1.39	0.51	1.25	1.91	g5 III:			
505	3 48 16.5	+59 14 55	13.07	2.50	1.91	1.20	0.67	0.23	0.57	0.72	b8 V	2.26	2690	
506	3 48 16.5	+59 05 22	13.61	3.10	2.26	1.33	0.70	0.26	0.58	0.82	b9.5 V	2.22	1470	m:
507	3 48 16.8	+59 01 30	13.06	3.33	2.34	1.39	0.73	0.26	0.63	0.90	a0 III	2.33	1530	m
508	3 48 17.4	+58 59 31	16.84	3.84	3.02	2.05	1.08	0.37	0.95	1.44	f0 V	2.89	1780	m
509	3 48 17.5	+59 11 20	12.18	4.82	3.97	2.79	1.28	0.47	1.15	1.69	g5 III:			
510	3 48 17.6	+59 03 10	16.54	3.50	2.65	1.90	0.95	0.34	0.85	1.21	f3 V	2.04	2590	
511	3 48 18.0	+59 08 59	15.28	3.50	2.70	1.71	0.82	0.31	0.69	1.02	a7 V, am:	2.24	1470	m:
512	3 48 18.4	+59 12 20	17.09		2.92	2.13	1.00	0.34	1.02	1.50	g0 V	2.04	1410	
513	3 48 18.5	+58 59 50	15.12	4.11	3.62	2.46	0.91	0.55	0.95	1.26	k4 V	0.66	324	
514	3 48 18.7	+59 11 12	17.00		2.91	2.06	1.04	0.37	0.93	1.35	f2 V	2.61	1900	m
515	3 48 18.8	+58 59 20	17.04		2.93	2.06	1.05	0.36	0.95	1.46	f2 V	2.65	1890	m
516	3 48 18.8	+59 13 57	17.04			2.37	1.13	0.42	1.02	1.50	f-g			
517	3 48 18.9	+59 10 35	16.76			2.95	1.38	0.48	1.28	1.94	g-k, mdg:			
518	3 48 19.1	+59 07 39	16.28	3.92	3.41	2.29	0.96	0.48	0.99	1.40	k2.5 V	1.01	570	
519	3 48 19.3	+58 57 26	17.19			2.01	1.01	0.37	0.97	1.46	f3 V	2.46	2050	
520	3 48 19.3	+59 00 33	15.60	3.86	2.85	1.76	0.85	0.31	0.70	1.09	a4 V, am	2.67	1850	m
521	3 48 19.5	+59 05 22	15.85	3.54	2.71	1.76	0.87	0.31	0.75	1.11	a9 V	2.27	1570	m
522	3 48 19.5	+58 58 18	15.86	3.60	2.80	1.98	0.99	0.34	0.92	1.35	f3 V	2.40	1400	m
523	3 48 19.6	+59 00 15	16.08	3.53	2.78	2.00	0.98	0.37	0.91	1.33	f5 V	2.20	1190	
524	3 48 19.9	+59 03 06	15.44		4.69	3.31	1.44	0.57	1.30	1.96	k1 III	2.56	2750	
525	3 48 20.0	+59 05 55	15.59	3.62	2.74	1.70	0.84	0.30	0.68	1.03	a5 V	2.38	1920	m
526	3 48 20.4	+59 02 21	17.38		3.00	2.11	1.15	0.39	0.97	1.46				
527	3 48 21.0	+59 02 24	16.60	3.58	2.72	2.02	0.98	0.36	0.93	1.34	f5 V	2.21	1510	m:
528	3 48 21.2	+59 06 01	17.50		3.27	2.42	1.11	0.43	1.09	1.61	g			
529	3 48 21.3	+58 57 06	14.25	3.89	2.82	1.75	0.94	0.37	0.85	1.36	a0 III	3.23	1640	
530	3 48 21.4	+59 06 59	16.98	3.59	2.83	2.00	1.00	0.35	0.92	1.34	f3 V	2.39	1920	m
531	3 48 21.4	+59 10 23	16.68	3.92	2.91	1.93	0.96	0.37	0.86	1.29	a8 V	2.40	3510	
532	3 48 21.6	+59 06 25	16.32	3.58	2.73	1.86	0.93	0.32	0.83	1.22	f0 V	2.23	2380	
533	3 48 21.6	+59 03 41	12.61	3.07	2.18	1.28	0.69	0.25	0.57	0.79	a0 III	2.16	1350	m:
534	3 48 22.2	+59 08 11	16.76	3.74	3.05	2.16	1.06	0.40	0.89	1.31	g4 V	2.01	2450	
535	3 48 22.2	+59 01 46	17.37			2.50	1.20	0.43	1.19	1.75	g0 V:			
536	3 48 22.6	+59 05 04	17.68			2.62	1.41	0.47	1.11	1.69	a-f			
537	3 48 22.8	+59 04 17	14.66	3.06	2.58	1.78	0.76	0.30	0.75	0.98	g6 V	0.72	570	
538	3 48 22.9	+58 58 11	17.51			2.66	1.34	0.49	1.12	1.69	a-f			
539	3 48 23.0	+59 05 12	17.77		2.98	1.83	0.98	0.33	0.73:	1.12	a			
540	3 48 23.6	+58 59 58	13.94	3.42	2.47	1.48	0.79	0.27	0.66	1.00	a0 IV	2.53	1670	m
541	3 48 23.7	+58 59 10	16.81			2.64	1.02	0.56	1.07	1.47	k3.7 V	1.23	560	
542	3 48 23.8	+59 03 02	14.80	3.47	2.64	1.65	0.80	0.29	0.69	1.03	a6 V	2.18	1330	m:
543	3 48 23.9	+59 06 04	17.44	3.69	2.98	2.21	1.06	0.40	0.96	1.43	f			
544	3 48 24.0	+59 11 38	17.19		2.97	2.23	1.07	0.39	1.01	1.48	f7 V	2.46	1510	m
545	3 48 24.3	+59 08 01	15.96	3.34	2.55	1.71	0.83	0.31	0.74	1.07	f0 V	2.00	1790	m:
546	3 48 24.4	+59 10 08	15.48	3.76	2.79	1.71	0.86	0.32	0.66	1.02	a4 V	2.54	1850	m
547	3 48 24.9	+59 08 30	15.43	3.49	2.67	1.66	0.80	0.31	0.64	0.95	a6 V	2.19	1770	m
548	3 48 24.9	+59 10 09	16.23	3.54	2.61	1.60	0.81	0.30	0.67	1.01	a0.5 V	2.63	3550	

Table 3. Continued

No.	RA(2000) h m s	DEC(2000) ° ′ ″	V mag	$U-V$ mag	$P-V$ mag	$X-V$ mag	$Y-V$ mag	$Z-V$ mag	$V-S$ mag	$V-I$ mag	Photom. sp. type	A_V mag	d pc	Memb.
549	3 48 25.0	+59 08 14	12.52	2.85	2.03	1.16	0.60	0.23	0.51	0.68	b9.5 V	1.80	1080	
550	3 48 25.3	+59 11 04	17.19		3.08	2.22	1.12	0.38	1.01	1.47	f5 V	2.82	2440	m:
551	3 48 25.9	+59 09 56	14.78		4.94	3.52	1.53	0.61	1.36	2.08	k1.5 III	2.91	1750	
552	3 48 25.9	+59 08 09	17.35		2.50	1.43	0.66	0.22	0.66	0.97	a			
553	3 48 25.9	+59 02 10	17.58		2.96	2.08	0.97	0.37	0.98	1.40	g			
554	3 48 26.2	+59 01 07	17.52			2.14	1.01	0.38	0.99	1.46	g0 V:			
555	3 48 26.2	+59 04 57	17.44			2.57	1.18	0.41	1.13	1.65	g			
556	3 48 27.0	+59 02 00	17.25			2.32	1.10	0.45	0.99	1.42	g2 V	2.25	1200	
557	3 48 27.2	+59 09 25	15.94			3.80	1.61	0.63	1.48	2.29	k3 III	2.64	3760	
558	3 48 27.2	+59 00 28	15.99	3.93	2.91	1.88	0.95	0.32	0.83	1.26	a6 V	2.67	2910	
559	3 48 27.6	+59 05 38	16.80	3.65	2.85	2.01	1.02	0.38	0.90	1.31	f2 V	2.38	2560	
560	3 48 27.8	+59 01 32	16.76	3.73	2.92	2.00	0.94	0.34	0.94	1.39	f1 V	2.09	3420	
561	3 48 27.9	+59 10 08	17.50			2.33	1.27	0.50	1.01	1.58	a			
562	3 48 27.9	+59 05 03	16.23	3.52	2.71	1.74	1.00	0.33	0.95	1.44	b8 V	3.57	3410	
563	3 48 28.1	+58 57 59	16.42	4.06	3.10	2.04	1.04	0.41	0.87	1.35	a7 V	3.10	1670	m:
564	3 48 28.3	+59 09 41	13.35	3.06	2.25	1.40	0.75	0.29	0.65	0.92	b8.5 IV	2.54	1710	m
565	3 48 28.4	+59 04 35	15.05	3.92	3.45	2.37	0.89	0.49	0.94	1.25	k3.2 V	0.79	328	
566	3 48 28.5	+59 07 48	15.47	3.57	2.73	1.72	0.81	0.29	0.71	1.04	a6 V	2.33	1690	m
567	3 48 28.7	+59 04 06	15.82	3.60	2.78	1.77	0.86	0.33	0.72	1.07	a7 V	2.41	1750	m
568	3 48 28.7	+59 07 29	17.68			2.03	1.00	0.36	0.98	1.51	f			
569	3 48 29.0	+59 02 06	15.58	2.90	2.43	1.70	0.75	0.29	0.76	0.99	g2 V	0.82	1040	
570	3 48 29.1	+59 05 46	14.28	3.43	2.51	1.46	0.77	0.27	0.63	0.92	a1 IV-V	2.36	1660	m
571	3 48 29.2	+59 00 37	12.74	4.77	3.96	2.80	1.23	0.47	1.14	1.65	g8.5 III	2.09		
572	3 48 29.3	+59 08 09	16.72	3.91	2.96	2.04	1.02	0.37	0.88	1.31	f1 IV	2.66	2200	m:
573	3 48 30.0	+59 00 57	12.91	3.40	2.42	1.45	0.79	0.28	0.68	0.98	b9.5 III	2.64	1330	m:
574	3 48 30.1	+58 58 23	15.35	3.81	2.84	1.71	0.87	0.30	0.73	1.12	a1.5 V	2.82	2220	m:
575	3 48 30.4	+58 58 10	17.27			2.98	1.37	0.56	1.28	2.00	k0 V			
576	3 48 31.4	+59 08 16	17.32			2.63	1.08	0.50	1.10	1.60	k3 V			
577	3 48 31.6	+59 09 21	16.27	3.83	2.84	1.89	0.93	0.31	0.88	1.29	a8 IV	2.63	2330	m:
578	3 48 31.6	+59 04 54	16.55	3.41	2.73	1.94	0.99	0.35	0.88	1.28	f6 V	1.98	1520	
579	3 48 31.8	+59 13 44	15.45	3.45	2.44	1.56	0.89	0.30	0.74	1.06	b9 III	3.12	3680	
580	3 48 32.0	+59 03 58	17.02	3.47	2.82	1.97	1.07	0.37	0.89	1.31	a-f			
581	3 48 32.1	+59 13 25	16.85	3.88	2.90	1.95	0.98	0.32	0.92	1.37	a9 V	2.77	1960	m
582*	3 48 32.4	+59 01 48	11.38	2.63	2.10	1.41	0.64	0.25	0.62	0.76	f6 IV	0.67	425	
583	3 48 32.6	+59 03 35	17.67	3.48	2.85	2.05	0.98	0.32	0.92	1.37	f-g			
584	3 48 32.9	+59 04 14	17.10		2.77	1.74	0.92	0.31	0.85	1.25	a-f			
585	3 48 33.1	+59 08 57	15.85	3.80	2.83	1.84	0.93	0.34	0.79	1.19	a6 IV	2.55	2290	m:
586	3 48 33.4	+59 14 14	13.78	3.22	2.76	1.85	0.77	0.35	0.74	0.95	g9 V	0.57	317	
587	3 48 33.8	+59 03 36	14.88	3.37	2.51	1.46	0.70	0.25	0.58	0.84	a4 V, am	1.96	1830	
588	3 48 34.3	+59 09 51	16.68	3.61	2.82	1.97	0.96	0.31	0.95	1.39	f2 V	2.44	1770	m
589	3 48 34.3	+58 58 02	16.21			3.41	1.59	0.63	1.38	2.16	k0 IV	3.70	760	
590	3 48 34.7	+59 10 05	17.78		2.99	1.89	0.91	0.33	0.77:	1.23	a			
591	3 48 35.2	+59 06 37	16.94		3.02	2.14	1.12	0.40	0.96	1.43	f2 V	2.82	1680	m
592	3 48 35.2	+59 08 00	16.92			2.80	1.30	0.49	1.13	1.63	g8 IV	2.57	1780	
593	3 48 35.2	+58 59 37	16.05			3.49	1.56	0.62	1.42	2.22	k1 III	3.08	2870	
594	3 48 36.0	+59 07 07	16.45			2.89	0.99	0.65	1.18	1.55	k7 V	0.46	394	
595	3 48 36.2	+58 59 28	14.40	3.69	2.69	1.62	0.88	0.31	0.71	1.09	a1 III-IV	2.91	1690	m
596	3 48 36.3	+58 59 10	17.46			2.48	1.12	0.41	1.08	1.57	g			
597	3 48 36.3	+59 02 02	17.10			2.68	0.99	0.55	1.07	1.47	k4 V	1.05	660	
598	3 48 37.1	+59 13 02	16.02	3.96	2.99	1.87	0.92	0.32	0.79	1.22	a4 V	2.94	1980	m:
599	3 48 37.2	+59 05 09	16.69	3.51	2.63	1.50	0.77	0.28	0.64	0.94	a1.5 V	2.42	4310	
600	3 48 37.3	+59 14 01	14.49	3.43	2.55	1.51	0.81	0.32	0.59	0.94	a1 V	2.37	1670	
601	3 48 37.5	+59 04 18	17.20	3.48	2.78	2.00	0.98	0.34	0.95	1.33	f6 V	2.12	1910	m:
602	3 48 37.6	+59 06 56	14.53	4.24	3.13	2.19	1.09	0.39	1.02	1.51	f3 III	2.83	970	
603	3 48 37.7	+59 02 24	17.71			1.86	0.82	0.35	0.79:	1.16	g			
604	3 48 37.8	+59 05 59	15.51	3.54	2.88	2.07	0.94	0.37	0.90	1.23	g4 V	1.57	650	
605	3 48 38.1	+58 59 44	17.47			2.31	1.09	0.40	1.01	1.58	g			
606	3 48 38.5	+59 04 51	16.87	3.49	2.78	1.88	0.95	0.34	0.85	1.25	f1 V	2.32	2180	
607	3 48 38.9	+59 09 15	16.66			2.95	1.40	0.47	1.32	2.00	g3 III	3.32	2970	
608	3 48 39.0	+59 09 56	17.11			2.89	1.04	0.67	1.14	1.53	k5 V	1.19	560	
609	3 48 39.1	+59 06 28	16.11			3.34	1.50	0.56	1.37	2.10	g9.5 III	3.15	2790	
610	3 48 39.3	+59 10 00	16.47	3.86	3.04	2.25	1.10	0.40	1.05	1.52	f5 V	2.76	1100	m:
611	3 48 39.7	+59 12 47	16.79		3.18	2.38	1.11	0.42	1.00	1.46	g2.5 V	2.29	930	

Table 3. Continued

No.	RA(2000) h m s	DEC(2000) ° ′ ″	V mag	U–V mag	P–V mag	X–V mag	Y–V mag	Z–V mag	V–S mag	V–I mag	Photom. sp. type	A_V mag	d pc	Memb.
612	3 48 39.8	+59 05 22	16.91		2.74	1.88	0.98	0.36	0.82	1.25				
613	3 48 40.0	+59 06 37	14.18	3.57	2.80	1.99	0.95	0.35	0.89	1.25	f-g			
614	3 48 40.2	+59 09 50	16.73		3.13	2.27	1.08	0.39	1.06	1.59	g0 V	2.39	1020	
615	3 48 40.4	+59 07 13	12.15	3.45	2.36	1.38	0.74	0.27	0.64	0.90	a0 II-III	2.44	2000	m:
616	3 48 40.7	+59 10 22	17.54			2.41	1.08	0.37	1.18	1.72	g-k			
617	3 48 41.0	+59 01 56	16.84	3.61	2.90	2.07	1.02	0.40	0.91	1.33	f6 V	2.25	2540	
618	3 48 41.2	+59 02 18	15.67	4.47	3.69	2.68	1.24	0.47	1.13	1.68	g6 IV	2.63	1010	
619	3 48 41.3	+59 11 26	17.53			2.35	1.10	0.40	1.06	1.65	g			
620	3 48 41.4	+59 04 18	14.08	3.25	2.38	1.34	0.69	0.25	0.58	0.82	a1 V	2.05	1600	m:
621	3 48 41.7	+59 11 34	17.68			2.31	1.12	0.38	1.07	1.65	f			
622	3 48 41.7	+59 03 05	14.64	5.26	4.43	3.11	1.38	0.55	1.23	1.83	k1 IV	2.58	620	
623	3 48 42.1	+59 04 57	17.18		2.94	2.16	1.03	0.38	0.97	1.38	g0 V	2.07	1450	m:
624	3 48 42.2	+59 03 20	15.86	3.77	3.28	2.26	0.85	0.46	0.88	1.14	k3 V	0.61	540	
625	3 48 42.4	+59 04 04	17.78			1.96	0.95	0.33	0.96	1.40	a			
626	3 48 42.7	+59 05 06	17.46		2.55	1.51	0.75	0.29	0.61	0.94	a			
627	3 48 43.5	+59 05 44	15.06	3.56	2.69	1.61	0.79	0.29	0.66	0.98	a4 V	2.31	1700	m
628	3 48 43.6	+59 12 49	16.52		3.16	2.27	1.14	0.42	0.98	1.51	f1 V	2.96	1730	
629	3 48 43.7	+59 05 38	14.99	3.49	2.58	1.55	0.75	0.27	0.66	0.94	a4 V	2.16	2220	
630	3 48 44.3	+59 12 00	17.38			2.41	1.26	0.42	1.10	1.64	f			
631	3 48 44.4	+59 07 24	16.93		3.13	2.15	1.14	0.40	0.98	1.52	f			
632	3 48 44.7	+59 04 39	17.17		2.78	2.02	1.01	0.40	0.86	1.25	f5 V	2.18	3140	
633	3 48 45.4	+59 05 19	16.46	3.59	2.69	1.61	0.83	0.29	0.71	1.04	a1.5 V	2.62	3540	
634	3 48 45.7	+59 00 37	16.76	3.79	2.95	1.99	1.11	0.35	0.92	1.39	a-f			
635	3 48 45.8	+59 02 57	16.53	3.52	2.76	1.96	0.98	0.37	0.88	1.26	f3 V	2.26	1660	m
636	3 48 45.9	+59 03 06	16.17	3.64	2.74	1.78	0.90	0.35	0.73	1.10	a8 V	2.39	1920	m
637	3 48 45.9	+59 05 13	16.45	3.52	2.67	1.57	0.80	0.29	0.70	1.03	a4 IV	2.27	4140	
638	3 48 46.1	+59 05 03	17.56			2.29	1.07	0.49	1.01	1.45	g			
639	3 48 46.1	+59 01 22	17.73			2.18	1.20	0.33	0.95:	1.41	a-f			
640	3 48 46.2	+59 05 17	14.81	5.01	4.22	3.00	1.36	0.54	1.22	1.80	k0 IV	2.48	700	
641	3 48 46.6	+59 03 03	17.07	3.52	2.83	2.06	1.08	0.42	0.89	1.32	f			
642	3 48 46.8	+59 03 24	12.74	3.30	2.26	1.27	0.69	0.25	0.61	0.82	a0 III	2.16	1430	m
643	3 48 47.4	+59 02 28	12.24	4.74	3.97	2.78	1.22	0.48	1.12	1.59	k0 III-IV			
644	3 48 47.8	+59 05 04	17.61			2.98	1.39	0.63	1.19	1.83	k			
645	3 48 47.9	+59 10 57	15.85	4.08	3.08	2.00	0.97	0.34	0.87	1.31	a6 V	3.07	1430	m:
646	3 48 48.2	+59 11 26	13.67	3.36	2.47	1.55	0.86	0.28	0.74	1.04	b9 III	3.00	1710	m
647	3 48 48.2	+59 09 35	17.60			1.76	0.96	0.27	0.80	1.18	a-f			
648	3 48 49.8	+59 08 07	17.49			2.19	1.23	0.40	1.04	1.53	f			
649	3 48 50.1	+59 05 45	15.16	5.60	4.75	3.38	1.43	0.60	1.34	1.97	k1.5 III	2.58	2430	
650	3 48 50.1	+59 10 08	16.11	4.22	3.19	2.04	1.07	0.35	0.90	1.37	a3 IV	3.52	2180	
651	3 48 50.7	+59 05 21	14.73	3.46	2.58	1.50	0.75	0.29	0.63	0.90	a1.5 V	2.35	1800	m
652	3 48 51.4	+59 06 11	14.37	4.11	3.44	2.43	1.10	0.45	1.03	1.45	g9 IV	1.63	850	
653	3 48 51.9	+59 06 13	15.13	3.63	2.73	1.63	0.80	0.28	0.68	0.99	a4 V	2.39	1690	m
654	3 48 51.9	+59 05 39	16.04		4.08	2.94	1.30	0.48	1.24	1.83	g8 III	2.51	3520	
655	3 48 52.1	+59 02 57	17.53			2.15	1.06	0.41	0.89	1.37	a-f			
656	3 48 53.4	+59 07 31	15.40	3.91	2.98	2.06	1.04	0.35	0.93	1.37	f1 IV	2.74	1240	
657*	3 48 53.6	+59 04 18	11.65	2.54	1.97	1.23	0.57	0.20	0.55	0.64	f1 V	0.76	405	
658	3 48 53.9	+59 07 19	17.39		2.55	1.63	0.89	0.28	0.74	1.13	f			
659	3 48 54.4	+59 07 27	15.23	3.64	2.79	1.77	0.89	0.31	0.72	1.11	a6 V	2.46	1420	m:
660	3 48 54.5	+59 08 59	17.07		3.08	1.97	1.03	0.33	0.92	1.35	a5 IV	3.14	3370	
661	3 48 55.1	+59 05 00	16.16	3.60	2.84	1.98	0.99	0.30	0.93	1.33	f2 V	2.44	1390	m:
662	3 48 55.2	+59 02 03	13.87	5.11	4.36	3.04	1.33	0.52	1.23	1.79	k0 III-IV			
663	3 48 56.8	+59 06 36	15.64	3.33	2.87	1.99	0.85	0.34	0.83	1.08	g8.5 V	0.91	670	
664	3 48 57.8	+59 02 05	17.16			2.20	1.13	0.44	0.95	1.43	a-f			
665	3 48 57.9	+59 05 32	16.24	3.48	3.05	2.08	0.92	0.41	0.85	1.16	g9 V	1.11	770	
666	3 48 58.1	+59 04 41	17.53			1.91	0.91	0.36	0.79	1.25	f			
667	3 48 59.4	+59 08 21	14.87	3.23	2.57	1.79	0.90	0.35	0.84	1.19	f3 V	1.87	930	
668	3 48 59.9	+59 04 36	15.67	3.64	2.82	1.75	0.86	0.35	0.72	1.08	a5 V	2.48	1890	m
669	3 49 00.2	+59 05 25	14.81	3.51	2.64	1.54	0.76	0.29	0.64	0.96	a1.5 V	2.44	1800	m
670	3 49 00.5	+59 02 57	16.20	3.65	2.90	2.10	1.04	0.41	0.95	1.41	f6 V	2.34	1090	
671	3 49 00.7	+59 06 39	17.46			1.94	0.94	0.36	0.85	1.36	f			
672	3 49 01.2	+59 08 09	15.86			3.88	1.61	0.69	1.47	2.31	k4 III	2.64	3610	
673*	3 49 01.4	+59 04 58	12.13	2.76	2.31	1.57	0.70	0.32	0.68	0.85	g0 V	0.71	265	
674	3 49 03.6	+59 06 15	11.57	7.11	6.06	4.38	1.80	0.83	1.61	2.86:	m0 III	2.88	750	

Notes.

17: if the star is cluster member, its luminosity class should be II.

35: 2MASS J03464290+5902134, the star is a close visual binary (~ 2″) with a complicated profile which prevents the determination of precise magnitudes by PSF.

74: HD 23278; BD+58 650; [ZZ2002] 193.

134: if the star is cluster member, its luminosity class should be II-III.

240: if the star is cluster member, its luminosity class should be II.

246: [ZZ2002] 197; A5 from the Majaess (2011) spectrum.

277: [ZZ2002] 199; Tycho Double Star Catalogue (TDSC) 8089; WDS 03477+5907A, Δm = 1.6, sep. 4.5″; B3 (McCuskey 1956); B2-B3 from the Majaess (2011) spectrum; possible blue straggler.

281: WDS 03477+5907B.

324: [ZZ2002] 201; emission-line star (see the text); B3 (McCuskey 1956); B2-B3 with central emission in Hβ in the Majaess (2011) spectrum; possible blue straggler.

370: WDS 03479+5907A, Δm = 0.4, sep. 4″; A3 from the Majaess (2011) spectrum.

372: WDS 03479+5907B.

378: HD 237180; BD+58 652, WDS 03480+5857, Δm = 3.4, sep. 11.7″.

434: [ZZ2002] 203.

475: [ZZ2002] 204.

582: [ZZ2002] 207.

657: [ZZ2002] 209.

673: [ZZ2002] 211.